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Agriculture



NRCS

Natural  
Resources  
Conservation  
Service

In cooperation with  
United States Department of  
Agriculture, Forest Service;  
United States Department of  
the Interior, Bureau of Land  
Management; Oregon State  
University Agricultural  
Experiment Station; and  
Wallowa Soil and Water  
Conservation District

# Soil Survey of Wallowa County Area, Oregon







# How To Use This Soil Survey

## General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

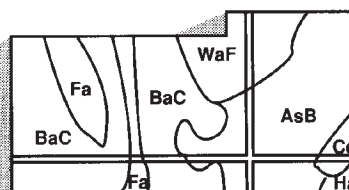
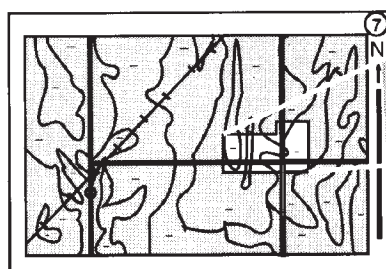
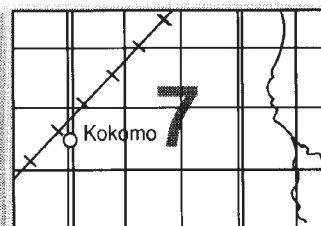
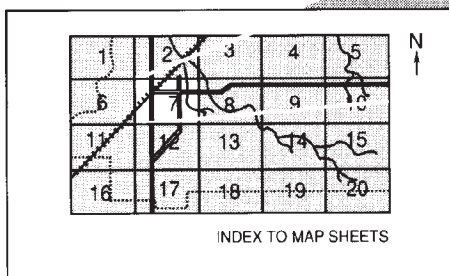
To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

## Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

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This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1996. Soil names and descriptions were approved in 1996. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1996. This survey was made cooperatively by the Natural Resources Conservation Service and the United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Land Management; Oregon State University Agricultural Experiment Station; and Wallowa Soil and Water Conservation District. The survey is part of the technical assistance furnished to the Wallowa Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

The most current soil information and interpretations for this survey area are available either through the Soil Data Mart or in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The Soil Data Mart is the Natural Resources Conservation Service data storage site for the official soil survey information. The FOTG is linked to the Soil Data Mart; therefore, the same information is available from both sources. Soil survey maps and tabular data can be accessed through the Soil Data Mart at <http://soildatamart.nrcs.usda.gov>. The official soil survey information stored at the Soil Data Mart and this soil survey report are also available through Web Soil Survey at <http://soils.usda.gov/survey>.

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**Cover: Forested Ferguson, Limberjim, and Syrupcreek soils on Chief Joseph Mountain in background. Cheval soils on flood plains adjacent to Lower Hurricane Creek in foreground.**

*Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.*

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# Foreword

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This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

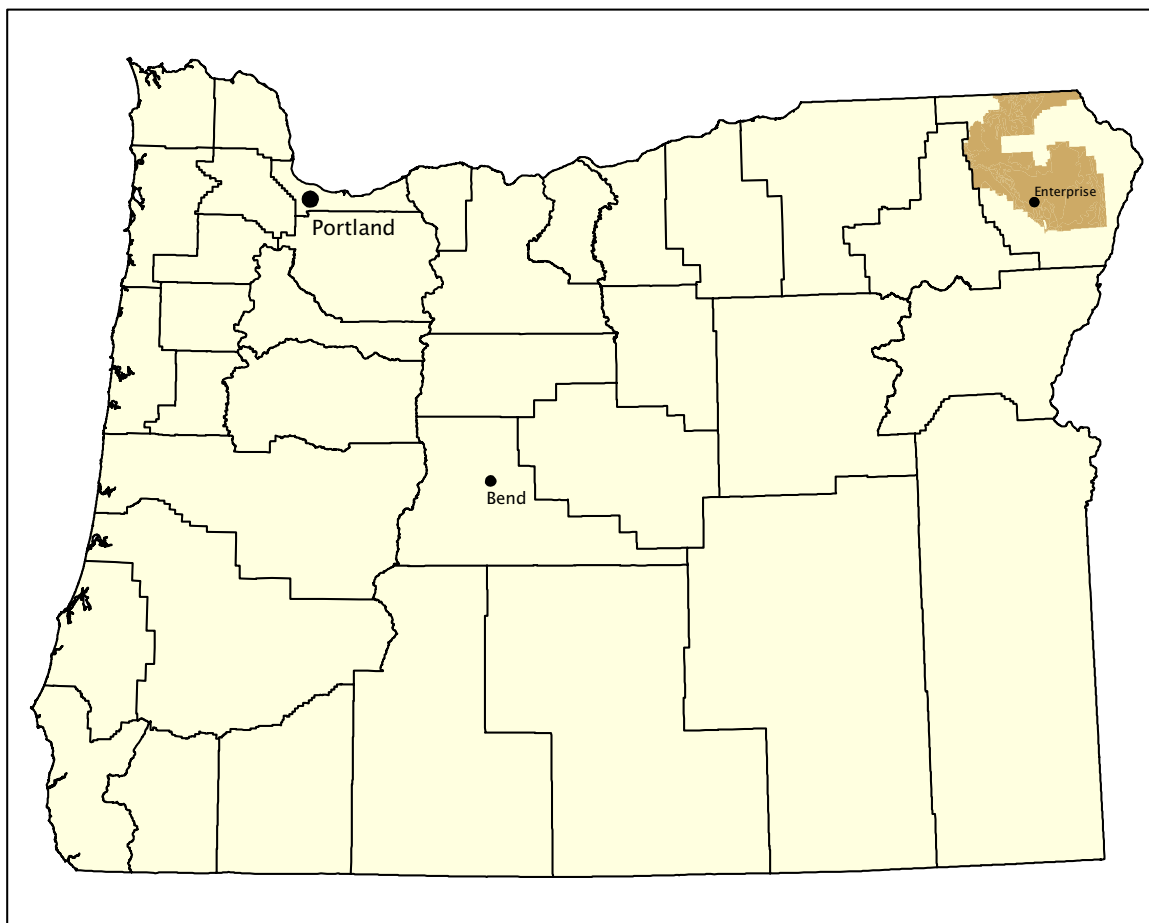
This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Bob Graham  
State Conservationist  
Natural Resources Conservation Service



Location of Wallowa County Area in Oregon.



# Soil Survey of Wallowa County Area, Oregon

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By James Kienzle, Natural Resources Conservation Service

Fieldwork by James Kienzle, Stanley Winther, and William Laird, Natural Resources Conservation Service; and Robert Ottersberg, contractor, Forest Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with

United States Department of Agriculture, Forest Service; United States Department of the Interior, Bureau of Land Management; Oregon State University Agricultural Experiment Station; and Wallowa Soil and Water Conservation District

WALLOWA COUNTY AREA is in the extreme northeastern corner of Oregon. According to the 2000 Census, Enterprise, the county seat, had a population of 1,895 and Wallowa County had a population of 7,226 (USDC, 2002). The survey area consists of 928,690 acres, which does not include the 1,000 acres that make up Wallowa Lake. Private land totals about 769,000 acres, or about 1,200 square miles. There are about 159,000 acres of public land, of which 18,900 acres is managed by the Bureau of Land Management, 117,000 acres is administered by the Forest Service, 9,000 acres is managed by the State, and 14,000 acres is locally owned and administered.

The survey area includes most of the private land in the county and the public land administered by the Forest Service along the southern part of the Imnaha River and a small area around Powwatka Ridge. Also included are isolated areas of public land managed by the Bureau of Land Management surrounded by private land. Soil survey work in this county was begun in 1960, but it was discontinued after 5 years because of higher priority work in other counties in Oregon. The current survey was started in 1988, and the fieldwork was completed in 1996.

The average annual precipitation in this survey area ranges from 12 to 45 inches. Elevation ranges from 800 feet along the Snake River to 6,800 feet on Chief Joseph Mountain. The survey area is composed of two major land resource areas (MLRAs). The Northern Rocky Mountains MLRA covers the forested land, and the Palouse and Nez Perce Prairies MLRA encompasses the cropland and rangeland (USDA, 1961). Wallowa County is unique in Eastern Oregon in that sagebrush is absent in almost all of the areas of native rangeland.

About 15 percent of the survey area is used for crops. Small grain and hay and pasture are the main crops. Snowmelt provides adequate water for irrigation. Water from Wallowa Lake is used for irrigation in summer. Irrigation water has been applied mainly by gravity flood or gravity sprinkler systems. Pressure irrigation systems are now being used in a number of areas.

About 25 percent of the survey area is forested and is used as a source of timber and for livestock grazing in summer. About 60 percent of the area is rangeland, which is used primarily for livestock grazing.

## **General Nature of the Survey Area**

This section gives general information about the history and development; physiography, relief, and drainage; and climate of the survey area.

### **History and Development**

Long before the white man arrived, the Nez Perce Indians hunted and fished in the region known as the Wallowa Country (Wallowa County Museum Board, 1983). Old Chief Joseph was their leader. Trappers were the first white men to enter the valley and encounter the Indians. The first recorded meeting between government officials and the Native Americans occurred in 1855 when Joel Palmer, governor of Oregon, and I.I. Stevens, governor of Washington, signed a treaty with the Nez Perce Indians. The Indians could not read and thought they signed for exclusive rights to the Wallowa Country, but they had actually given up all claims to the land in northeastern Oregon. Understandably, they were outraged. The two governors promised that the Indians would not be harmed. They then prepared an amended treaty in which most of the Indians agreed to leave the region.

Young Chief Joseph and some of his followers refused to sign the treaty and moved to more remote areas of the county. Finally, the cavalry ordered all the remaining Indians to leave. Young Chief Joseph and his tribe departed without incident. The now famous but short Indian War of 1877 began as a result of an accompanying tribe, angered by the silent retreat, attacked white settlements along the way. The cavalry then chased all of the Indians, including Young Chief Joseph, into Montana where they surrendered. The defeated Indians were settled on the Colville Indian Reservation in Washington.

Drought conditions in the Grande Ronde Valley and government land survey reports of abundant bunchgrass in the high meadows to the east resulted in the first cattle herds being moved into the Wallowa Valley in 1871. Leading the way were James and Erasmus Tulley, who eventually settled near the present town of Wallowa. William McCormack was acknowledged as the first permanent resident in 1872. By 1873, 20 families had built homes in the area. The population of the Wallowa Country continued to grow, so in 1888 the Oregon legislature separated the Wallowa Country from Union County and established Wallowa County.

Early settlers traversed the hilly Minam country on horseback to access the Wallowa Valley. In 1879, the Wallowa Canyon Road was constructed between Elgin and the town of Wallowa. A stage line was quickly organized. Construction of the first railroad in the county began in August of 1905, and it was completed 4 years later. The Oregon Railway and Navigation Company was the builder. Immigrants could then easily enter the valley, but just as easily commodities could be sent out of the valley for distant markets. Until the construction of the railroad, grain production was not economically feasible. Thus, livestock was the main enterprise. After the construction of the railroad, cattle and sheep were moved to less desirable land.

### **Agriculture**

Because of the short growing season in the survey area, the majority of the area is limited to livestock grazing and the production of grain and timber. Orchards and gardens once were common in Wallowa Valley, but now fruits and vegetables are grown only in the warmer Imnaha and Troy areas.

### **Livestock**

Livestock production consists of beef cattle and sheep operations. The number of hogs and dairy cattle has long since declined. For beef production, the deep canyons bordering the higher areas of rangeland in the survey area provide a unique

advantage over areas in other counties. From October to May cattle graze the lower and warmer canyon bottomland. As the temperatures rise in spring, the cattle are driven to the higher and cooler areas of rangeland. Snowfall in autumn forces the return of the cattle to the lower areas. Alfalfa and hay are used as supplements for the cattle.

Sheep were once of great importance in the survey area. At one time more than 100,000 breeding ewes produced wool and lambs each year and grazed the land considered too rugged for cattle and horses. Sheep ranches commonly were large and under the control of only a few men. After World War II, the number of sheep in the area sharply decreased as the number of coyotes rose and reliable sheepherders became more difficult to employ. But more importantly, the demand of the general public to move sheep off of government land in favor of wildlife was the major factor in forcing out the sheep business.

Hog and dairy cattle operations also thrived in the area. In fact, Wallowa County was renowned as the leading producer of hogs in Oregon. In addition, dairy cattle were so abundant that dairies and creameries seemed to be everywhere. Residents could even boast of having a cheese factory. Local promoters attributed the ease of raising hogs and dairy cattle to the cool temperatures, which suppressed diseases, and to the abundance of forage and pure water. After World War II, the requirement of having on-the-farm stainless steel tanks and pipes brought an end to the dairy business in the county (Isley, 1992). Local farmers simply could not afford to meet the requirement. Because hogs were raised side by side with dairy cattle on most farms, the lack of milk farms also meant elimination of cheap milk for fattening hogs. As a result, hog production declined as the dairy business collapsed.

### **Grain**

The major crops include wheat, barley, oats, and hay, especially alfalfa hay. These crops can be grown in rotation. The crop grown depends on the market value of each commodity and the demand for winter hay.

Crops were first sown by throwing seed from the back of a horse-drawn wagon and using a drag chain to cover the seed with soil. In 1903 the first grain drill was brought to the area and was pulled by four horses. In 1917 the self-propelled steam engine instead of horses was used to pull the grain drill.

In the early 1900's, grain was separated from the chafe either by a ground-driven or stationary thrasher. The ground-driven thrasher was pulled by a team of 20 to 30 horses, which turned a 5-foot bull wheel. Through a series of gears, the power was transferred from the bull wheel to the thrasher. Bundles of grain were fed into the stationary thrasher. Around 1910, the steam engine replaced horses as the source of power for the stationary thrasher. The steam engine and thrasher were linked by pulleys and a long belt.

Local flour mills processed most of the grain grown in the valley in the early 1900's. Excess wheat was exported by rail to Pendleton. Farmers around the town of Flora had the difficult task of moving their grain to Lewiston, Idaho. The local flour mills are all closed now, so all of the grain is shipped out of the county for milling.

### **Timber**

Logging in the early days was a winter activity. Once the fallen trees had been sawed into 16.5-foot lengths, horses dragged the logs to a nearby dirt road where they were loaded onto a sled. A team of horses pulled the sled to the nearest railroad track. Loading and unloading the logs was immeasurably aided by the steam engine donkey, which had the power to lift and stack logs onto flatbed railroad cars.

Because of the abundance of timber and water power to drive the saws, mills were plentiful. One of the largest was the East Oregon Lumber Company located in

Enterprise, which employed 500 people. This company operated throughout the 1920's and logged along Trout Creek and all through the North Country. The J. Herbert Bate Mill of Wallowa became the largest miller in the 1940's and 1950's. In 1963 Boise Cascade of Joseph bought all of their holdings. Approximately 90 million board-feet of timber are processed each year at all of the mills in the county. Ponderosa pine is the most common tree species and also the species most used in sawmill processing.

### **Irrigation**

In order to irrigate their land, farmers in the Wallowa Valley banded together to form ditch companies in the early 1900's. Each company diverted water from nearby rivers or streams to fields by use of open ditches. To finance these projects, the companies taxed each member for the construction and maintenance of the ditches. Initially, water was distributed over the land by flood irrigation. Now farmers are shifting to sprinkler irrigation systems.

Various ditch companies serve the water needs of the county. For example, water is removed from Hurricane Creek near Enterprise by the Alder Slope and Lower Alder Slope Ditch Companies for use by Alder Slope farmers. The water for Diamond Prairie near Wallowa is provided by the Chamberlin Ditch Company. The Sheep Creek, Westside, Poley-Allen, and Clearwater Ditch Companies use water from the Lostine River to supply farmers in the area between Lostine and Wallowa.

The farmers around Joseph dammed Wallowa Lake, which raised the water level by 27 feet. Four prominent ditches supply water to the fields just north of the lake. These are the Silverlake, Farmers, Big Bend, and Wrenn Dobbin Ditches.

### **Physiography, Relief, and Drainage**

The survey area is composed of broad plateaus and a major river valley, the Wallowa Valley. This valley is long and somewhat narrow. It stretches from the town of Joseph on the east, through the towns of Enterprise, Lostine, and Wallowa, to the entrance of Wallowa Canyon on the west. The broad plateaus include the range country of Zumwalt Prairie, northeast of Enterprise, and the Leap area, north of Lostine. Also included are the forested areas around Akers Butte to the northwest and Harl Butte to the southeast.

About 15 percent of the survey area, or 139,303 acres, is used for crops and pasture. Most of this acreage is in the Wallowa Valley. Rangeland makes up about 60 percent of the survey area, or 557,214 acres. The remaining 25 percent of the area, or 232,173 acres, is forestland.

Wallowa Valley is drained by Prairie Creek, Hurricane Creek, and the Lostine River, which combine into the Wallowa River. At the town of Minam, the Minam River joins the Wallowa River. Eventually, the Wallowa River merges into the Grande Ronde River. To the northeast, Chesnimnus, Crow, and Swamp Creeks drain the forested upland. These creeks empty into Joseph Creek and then into the Grande Ronde River and the Snake River. To the east, Little Sheep and Big Sheep Creeks flow into the Imnaha River and drain the rangeland. The Imnaha River continues to the north and is joined by Horse Creek, where it ultimately drains into the Snake River. Most of the rivers and streams in the survey area follow geologic faults and are therefore relatively straight.

Wallowa County was a recipient of an ancient volcanic ashfall from the explosion of Mt. Mazama 7,700 years ago (Bacon and others, 1997). The silt-sized volcanic ash clung to forested areas, covering the basaltic colluvium with a white mantle. In areas of rangeland, the white ash had less vegetation to hold it and protect it from erosion so much of it was washed away. The remaining ash mixed with dark-surfaced loess, so its whiteness was lost. In both cases, the ash enhanced the available water

capacity of the original soil and resulted in a diversity of plant life that otherwise would not have been present.

The survey area is bordered by the Wallowa Mountains to the south, the Snake River and Idaho State line to the east, the Washington State line to the north, and the Wallowa and Grande Ronde Rivers to the west.

The geology of the area is dominated by broad basalt plateaus that are a result of many Miocene lava flows. Deep dissection of these plateaus by streams has exposed the layers of lava flows. These layers are also evident in the uplifted Wallowa Mountains, south of Enterprise, and more specifically on Ruby Peak.

The Lostine Valley and Snake River Canyon have exposed rocks that are composed of material other than the abundant basalt in the survey area. Above the floor of the Lostine Valley, steep slopes display rock outcroppings of argillite, limestone, and conglomerate. Over time these outcroppings fractured into individual rocks, which moved downslope by colluvial action. The rock and soil then mixed with the volcanic ash to produce the present soils. In the northeastern corner of the county, conglomerate and sandstone are exposed at the junction of the Snake River Canyon and Cache Creek.

The Wallowa Mountains have a granitic core that is very resistant to erosion. Yet, granitic rock has been ripped out by glaciers and carried downslope into the survey area. The rock was rounded and deposited in moraines at the base of the mountains. Glacial meltwater carried smaller rocks and sand into the Wallowa, Lostine, and Imnaha River Valleys.

## Climate

Prepared by the Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon.

Data for the climate tables were recorded at the Enterprise R S, Enterprise 20 NNE, Minam 7 NE, and Wallowa, Oregon, climate stations. Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from data recorded at the First Order station at Lewiston, Idaho.

Table 1 gives data on the average temperature and precipitation for the survey area as recorded at Enterprise R S, Enterprise 20 NNE, Minam 7 NE, and Wallowa in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season. The full period of record is used for extremes. The full period extends from 1932 to 1982 at Enterprise R S, 1969 to 1998 at Enterprise 20 NNE, 1956 to 1985 at Minam 7 NE, and 1948 to 1996 at Wallowa.

In winter, the average temperature is 27.3 degrees F at Enterprise R S, 28.2 degrees at Enterprise 20 NNE, 26.1 degrees at Minam 7 NE, and 28.6 degrees at Wallowa. The average daily minimum temperature in winter is 17.5 degrees, 17.7 degrees, 16.4 degrees, and 19.9 degrees, respectively. The lowest temperature on record was -36 degrees at Enterprise R S on February 9, 1933; -33 degrees at Enterprise 20 NNE on December 29, 1990; -39 degrees at Minam 7 NE on December 23, 1983; and -32 degrees at Wallowa on December 17, 1964.

In summer, the average temperature is 60.5 degrees at Enterprise R S, 61.6 degrees at Enterprise 20 NNE, 58.2 degrees at Minam 7 NE, and 62.8 degrees at Wallowa. The average daily maximum temperature in summer is 78.8 degrees, 81.0 degrees, 77.6 degrees, and 81.5 degrees, respectively. The highest temperature on record was 107 degrees at Enterprise R S on July 24, 1933; 106 degrees at Enterprise 20 NNE on August 14, 1994; 106 degrees at Minam 7 NE on August 4, 1961; and 107 degrees at Wallowa, on August 4, 1961.

Growing degree days are shown in table 1. They are equivalent to "heat units."



During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual precipitation in the survey area is somewhat dependent on elevation. In general, about 12 to 18 inches of precipitation falls in most of the Wallowa Valley, with higher amounts in the higher areas surrounding the valley and in the northern area around the Enterprise 20 NNE reporting station, where the average annual precipitation is 19.39 inches. The western part of the survey area receives 18 to 26 inches of precipitation annually, depending on elevation and location. The relatively short growing season is quite dry. Only about 3 to 4 inches of precipitation, or about 20 percent of the annual total, falls during the frost-free season of June through August.

Thunderstorms occur on about 15 to 20 days each year, and most occur in May through August. The heaviest 24-hour rainfall during the period of record was 1.64 inches at Enterprise R S on June 26, 1934; 2.40 inches at Enterprise 20 NNE on August 31, 1984; 2.16 inches at Minam 7 NE on January 25, 1970; and 1.98 inches at Wallowa on July 1, 1982.

The average seasonal snowfall is dependent on elevation and location. In general, most of the area receives 30 to 40 inches of snowfall each year, but the higher elevations receive as much as 80 inches or more. For example, the average seasonal snowfall at Minam 7 NE, which is at an elevation of 3,620 feet, is 79.8 inches. The greatest snow depth at any one time during the period of record was 22 inches at Enterprise R S on February 12, 1932; 30 inches at Enterprise 20 NNE on February 11, 1985; 39 inches at Minam 7 NE on March 14, 1964; and 26 inches at Wallowa on January 1 through 14, 1993. On the average, 31 days per year have at least 1 inch of snow on the ground at Enterprise R S, 49 days at Enterprise 20 NNE, 88 days at Minam 7 NE, and 53 days at Wallowa. The heaviest 1-day snowfall on record was 16 inches at Enterprise R S on February 7, 1938; 18 inches at Enterprise 20 NNE on January 11, 1998; 18 inches at Minam 7 NE on January 23, 1982; and 15 inches at Wallowa on November 25, 1961.

The average relative humidity in midafternoon is about 70 percent in midwinter and about 25 percent in July and August. Humidity is higher at night, and the average at dawn is about 80 percent in October through March and about 60 percent in midsummer. The sun shines 75 to 80 percent of the time possible in summer and about 40 percent in winter. Prevailing winds are very dependent on location because of the influence of the complex topography. In general, winds are from the southwest in winter and from the northwest in summer. Average windspeed is highest in spring, generally about 10 miles per hour in open areas in March and April.

## **How This Survey Was Made**

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area.

Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil mapping on the land managed by the Forest Service, known as the Ecological Unit Inventory (EIS), was completed under private contract. The EIS correlates directly to the standard Natural Resources Conservation Service soil survey and was completed as part of the National Cooperative Soil Survey for this survey area.



# General Soil Map Units

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The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

## ***Warm, Dry Soils on Fans, Terraces, and Flood Plains***

*Number of map units: 2*

*Percentage of survey area: 1.7 percent*

### **1. Voats-Hershal-Veazie**

*Nearly level, well drained and poorly drained, warm, very deep soils that formed in stratified mixed alluvium*

*Major landforms: Flood plains*

*Percentage of survey area: 0.7 percent*

*Elevation: 1,600 to 3,400 feet*

*Mean annual precipitation: 13 to 17 inches*

*Mean annual air temperature: 45 to 50 degrees F*

*Frost-free period: 100 to 120 days*

*Minor components: Balm, Snow, and Catherine soils and Riverwash*

*Present uses: Livestock grazing and hay and pasture (fig. 1)*

*Limitations for use: Hazard of flooding, rapid permeability, depth to very gravelly or very cobbly sandy layers, and high water table in depressions*

### **2. Langrell-Conley-Snow**

*Nearly level to strongly sloping, well drained and somewhat poorly drained, warm, very deep soils that formed in glaciofluvial deposits, lacustrine deposits, loess, and alluvium*

*Major landforms: Outwash terraces, alluvial fans, and stream terraces*

*Percentage of survey area: 1.0 percent*

*Elevation: 2,000 to 3,400 feet*



Figure 1.—In middle, area of general soil map unit 1 used for hay and pasture. This area is on flood plains next to the Wallowa River. Area of general soil map unit 2 used for irrigated cropland on adjacent higher terraces. Area of general soil map unit 13 used as rangeland and nonirrigated cropland on low hills just above the flood plains. Forestland in foreground and background is representative of general soil map units 15 and 14, respectively.

*Mean annual precipitation:* 13 to 17 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 100 to 150 days

*Minor components:* Gelsinger, Phys, Ramo, Conley, and Hershall soils

*Present uses:* Irrigated cropland, hay and pasture, livestock grazing, and homesites

*Limitations for use:* Available water capacity, permeability, seepage, high water table, shrink-swell potential, and depth to claypan

### ***Warm, Dry Soils on Structural Benches, Hills, Canyons, and Basalt Plateaus***

*Number of map units:* 2

*Percentage of survey area:* 2.6 percent

### **3. Doublecreek-Schuelke-Tannahill**

*Strongly sloping to very steep, well drained, warm, moderately deep to very deep soils that formed in mixed loess and colluvium and residuum derived from basalt*

*Major landforms:* Structural benches, and backslopes and footslopes of canyons

*Percentage of survey area:* 1.5 percent

*Elevation:* 1,700 to 4,000 feet

*Mean annual precipitation:* 12 to 17 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 100 to 160 days

*Minor components:* Schrier, Licksillet, Phys, and Rockly soils, Rock outcrop, and Almota, Sag, Laufer, Langrell, Collegecreek, and Thiessen soils

*Present uses:* Livestock grazing and homesites

*Limitations for use:* Hazard of water erosion, slope, corrosivity, available water capacity, and depth to bedrock

#### **4. Laufer-Thiessen-Watama**

*Undulating to very steep, well drained, warm, shallow or moderately deep soils that formed in loess and colluvium derived from basalt*

*Major landforms:* Plateaus, structural benches, backslopes of canyons, and hills

*Percentage of survey area:* 1.1 percent

*Elevation:* 900 to 4,000 feet

*Mean annual precipitation:* 13 to 17 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 100 to 145 days

*Minor components:* Langrell, Hurwal, Snow, Conley, Snell, Harlow, and Rockly soils

*Present uses:* Livestock grazing and nonirrigated cropland

*Limitations for use:* Hazard of water erosion, slope, permeability, shrink-swell potential, available water capacity, cobbles and stones on the surface, depth to clayey layers, and depth to bedrock

#### ***Warm, Moist Soils in Canyons and on Basalt Plateaus***

*Number of map units:* 3

*Percentage of survey area:* 14

#### **5. Gwinly-Kettenbach-Mallory**

*Steep and very steep, well drained, warm, shallow or moderately deep soils that formed in loess and colluvium derived from basalt*

*Major landforms:* Plateaus and backslopes of canyons

*Percentage of survey area:* 6.0 percent

*Elevation:* 1,400 and 4,100 feet

*Mean annual precipitation:* 17 to 24 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 100 to 120 days

*Minor components:* Harlow, Snell, and Lookingglass soils, Rock outcrop, and Threebuck, Sopher, Imnaha, Lawyer, Getaway, and Tamarackcanyon soils

*Present use:* Livestock grazing

*Limitations for use:* Hazard of water erosion, slope, depth to bedrock, available water capacity, shrink-swell potential, permeability, depth to clayey layers, and stones on the surface

#### **6. Lookingglass-Gwinly-Sopher**

*Gently sloping to very steep, moderately well drained and well drained, warm, shallow to very deep soils that formed in loess and colluvium derived from basalt*

*Major landforms:* Plateaus, structural benches, and backslopes of canyons



*Percentage of survey area:* 2.4 percent

*Elevation:* 1,500 to 4,000 feet

*Mean annual precipitation:* 17 to 24 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 100 to 150 days

*Minor components:* Mallory and Kettenbach soils, Rock outcrop, and Lawyer, Voats, and Veazie soils

*Present uses:* Nonirrigated cropland (fig. 2), timber production, livestock grazing, and homesites

*Limitations for use:* Timber production—hazard of water erosion, slope, hazard of compaction, and dustiness; other uses—depth to bedrock, available water capacity, shrink-swell potential, permeability, depth to clayey layers, and depth to water table

## **7. Gwin-Kettenbach-Rock outcrop**

*Steep and very steep, well drained, warm, shallow or moderately deep soils that formed in loess and colluvium derived from basalt*

*Major landforms:* Backslopes of canyons

*Percentage of survey area:* 5.6 percent

*Elevation:* 800 to 4,000 feet

*Mean annual air temperature:* 45 to 51 degrees F

*Mean annual precipitation:* 15 to 23 inches

*Frost-free period:* 100 to 160 days

*Minor components:* Cherrycreek, Anatone, Thiessen, Imnaha, Klickson, Larabee, and Harlow soils

*Present use:* Livestock grazing



**Figure 2.—Area of general soil map unit 6 used as nonirrigated cropland. This area is on structural benches in the northern part of Wallowa County.**

*Limitations for use:* Hazard of water erosion, slope, depth to bedrock, and available water capacity

### ***Cool, Moist Soils on Flood Plains, Outwash Plains, Stream Terraces, and Fans***

*Number of map units:* 3

*Percentage of survey area:* 3.8 percent

## **8. Minam**

*Gently sloping and strongly sloping, well drained, cool, very deep soils that formed in mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part*

*Major landforms:* Fans

*Percentage of survey area:* 1.0 percent

*Elevation:* 3,400 to 5,000 feet

*Mean annual precipitation:* 17 to 30 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Endoaquepts, and Olot and Tuckerdowns soils

*Present uses:* Irrigated cropland, hay and pasture, homesites, and timber production (fig. 3)

*Limitations for use:* Hazard of water erosion, depth to extremely gravelly or very cobbly layers, frost heaving, and stones on the surface



**Figure 3.—In middle, hay and pasture, forestland, and homesites in an area of general soil map unit 8 on Alder Slope. Cropland in an area of general soil map unit 9 in foreground. Area of general soil map unit 18 in forested area in background.**

## **9. Redmount-Reavis-Lostine-Silverlake**

*Nearly level and gently sloping, well drained, cool, deep and very deep soils that formed in glaciofluvial deposits with an influence of loess and minor amounts of volcanic ash in the upper part*

*Major landforms:* Outwash plains

*Percentage of survey area:* 1.8 percent

*Elevation:* 3,400 to 4,400 feet

*Mean annual precipitation:* 13 to 17 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Chesnimnus, Josset, and Cheval soils

*Present uses:* Irrigated cropland, hay and pasture, and homesites

*Limitations for use:* Frost heaving, dustiness, depth to very gravelly layers, corrosion potential, seepage, depth to a duripan, and shrink-swell potential

## **10. Freels-Cheval-Eggleston**

*Nearly level, moderately well drained or somewhat poorly drained, cool, very deep soils that formed in mixed alluvium*

*Major landforms:* Flood plains and low stream terraces

*Percentage of survey area:* 1.0 percent

*Elevation:* 3,400 to 4,400 feet

*Mean annual precipitation:* 13 to 17 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Matterhorn, Redmount, Sturgill, Josset, and Reavis soils

*Present uses:* Livestock grazing, hay and pasture, and limited homesites

*Limitations for use:* High water table, hazard of flooding, permeability, depth to extremely gravelly layers, seepage, and corrosion potential

## ***Cool, Moist Soils on Glacial Moraines***

*Number of map units:* 1

*Percentage of survey area:* 1.5 percent

## **11. Rondowa**

*Gently sloping to steep, well drained, cool, very deep soils that formed in mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part*

*Major landforms:* Glacial moraines

*Percentage of survey area:* 1.5 percent

*Elevation:* 3,500 to 5,000 feet

*Mean annual precipitation:* 17 to 30 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Hurwal, Bittercreek, Mippon, Redmount, and Tolo soils

*Present uses:* Livestock grazing and homesites

*Limitations for use:* Hazard of water erosion, slope, frost heaving, and depth to very cobbly or very stony layers

### ***Cool, Dry Soils on Structural Benches, Hills, Canyons, and Basalt Plateaus***

*Number of map units:* 1

*Percentage of survey area:* 22.6 percent

## **12. Harlow-Bocker-Snell**

*Undulating to steep, well drained, cool, very shallow to moderately deep soils that formed in loess and colluvium derived from basalt*

*Major landforms:* Structural benches, plateaus, backslopes of hills, and canyons

*Percentage of survey area:* 22.6 percent

*Elevation:* 2,800 to 5,000 feet

*Mean annual precipitation:* 13 to 17 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Hurwal, Wallowa, Powwatka, Zumwalt, Tippet, and Topper soils

*Present use:* Livestock grazing (fig. 4)

*Limitations for use:* Hazard of water erosion, available water capacity, depth to



**Figure 4.—Area of general soil map unit 12 on undulating hills. Cultivated field used for nonirrigated crops in middle, and areas used as rangeland and for livestock grazing in foreground and background.**

bedrock, permeability, shrink-swell potential, and cobbles and stones on the soil surface

### ***Cool, Moist Soils on Structural Benches, Hills, Canyons, Basalt Plateaus, and Mountains***

*Number of map units:* 4

*Percentage of survey area:* 40.9 percent

## **13. Cloverland**

*Gently sloping to strongly sloping, moderately well drained, cool, very deep soils that formed in loess over clayey colluvium and residuum derived from basalt*

*Major landforms:* Plateaus and structural benches

*Percentage of survey area:* 0.7 percent

*Elevation:* 3,400 to 4,000 feet

*Mean annual precipitation:* 17 to 24 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Getaway, Harlow, Sweiting, Tolo, Sopher, and Lookingglass soils

*Present uses:* Timber production, nonirrigated cropland, and homesites

*Limitations for use:* High water table, depth to clayey layers, frost heaving, permeability, and shrink-swell potential

## **14. Cowsly-Klicker-Tolo**

*Gently sloping to very steep, moderately well drained and well drained, cool, moderately deep to very deep soils that formed in loess and colluvium derived from basalt and in volcanic ash and loess over colluvium and residuum derived from basalt*

*Major landforms:* Plateaus, structural benches, and backslopes of canyons, hills, and mountains

*Percentage of survey area:* 19.6 percent

*Elevation:* 2,800 to 6,200 feet

*Mean annual precipitation:* 17 to 30 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Anatone, Olot, Bocker, Albee, Getaway, Howmeadows, Sherod, Wilkins, Lookingglass, Sweiting, Sopher, and Threebuck soils

*Present uses:* Timber production, nonirrigated cropland, and limited homesites

*Limitations for use:* Hazard of water erosion, slope, high water table, depth to a claypan, permeability, shrink-swell potential, frost heaving, and dustiness

## **15. Tamarackcanyon-Threebuck-Harlow**

*Strongly sloping to very steep, well drained, cool, shallow to deep soils that formed in mixed volcanic ash and loess over colluvium derived from basalt and in loess and colluvium derived from basalt*

*Major landforms:* Plateaus, structural benches, and backslopes of hills and canyons



*Percentage of survey area:* 6.5 percent

*Elevation:* 2,800 to 6,200 feet

*Mean annual precipitation:* 17 to 30 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Anatone, Bocker, Linecreek, Getaway, Imnaha, Cowsly, Snell, Olot, and Albee soils

*Present uses:* Timber production and livestock grazing

*Limitations for use:* Hazard of water erosion, available water capacity, permeability, shrink-swell potential, depth to bedrock, depth to clayey layers, slope, and dustiness

## **16. Bocker-Imnaha-Rock outcrop**

*Strongly sloping to very steep, well drained, cool, very shallow and moderately deep soils that formed in loess and colluvium derived from basalt and in mixed volcanic ash and loess over colluvium and residuum derived from basalt*

*Major landforms:* Plateaus, structural benches, and backslopes of canyons

*Percentage of survey area:* 14.1 percent

*Elevation:* 2,800 to 6,200 feet

*Mean annual precipitation:* 17 to 30 inches

*Mean annual air temperature:* 42 to 45 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Anatone, Getaway, Clearline, Rockly, Licksillet, Kahler, Harlow, Linecreek, and Needhill soils

*Present use:* Livestock grazing (fig. 5)

*Limitations for use:* Hazard of water erosion, slope, depth to bedrock, and available water capacity

## ***Cool, Moist Soils on Metasedimentary Mountains***

*Number of map units:* 1

*Percentage of survey area:* 0.2 percent

## **17. Slicklog**

*Steep and very steep, well drained, cool, very deep soils that formed in volcanic ash and colluvium derived from argillite, shale, or conglomerate*

*Major landforms:* Foothills, toeslopes, and backslopes of mountains

*Percentage of survey area:* 0.2 percent

*Elevation:* 3,800 to 6,200 feet

*Mean annual precipitation:* 25 to 35 inches

*Mean annual air temperature:* 41 to 44 degrees F

*Frost-free period:* 70 to 85 days

*Minor components:* Harlow, Eastpine, Vandamine, Wintercanyon, Snell, and Imnaha soils

*Present use:* Timber production

*Limitations for use:* Hazard of water erosion, slope, and dustiness





Figure 5.—Area of general soil map unit 16 in canyons. Rangeland is on south-facing slopes, and forestland is on north-facing slopes.

### ***Cool, Wet Soils on Structural Benches, Canyons, Basalt Plateaus, and Mountains***

*Number of map units: 2*

*Percentage of survey area: 12.2 percent*

## **18. Syrupcreek-Tamara-Anatone**

*Strongly sloping to very steep, well drained, cool, shallow to very deep soils that formed in volcanic ash over a mixture of loess, colluvium, and residuum derived from basalt or andesitic tuff breccia, and in loess and colluvium derived from basalt*

*Major landforms:* Plateaus, structural benches, and backslopes of canyons and mountains

*Percentage of survey area:* 11.1 percent

*Elevation:* 2,800 to 6,500 feet

*Mean annual precipitation:* 20 to 35 inches

*Mean annual air temperature:* 41 to 44 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Limberjim, Olot, Harl, Ferguson, Albee, Akerite, Tolo, and Imnaha soils

*Present uses:* Timber production and livestock grazing

*Limitations for use:* Hazard of water erosion, slope, dustiness, depth to bedrock, available water capacity, and stones on the soil surface

## 19. Flycreek-Btree

*Strongly sloping to very steep, well drained, cool, moderately deep and deep soils that formed in volcanic ash over colluvium and residuum derived from acidic tuff*

*Major landforms:* Plateaus and backslopes of canyons

*Percentage of survey area:* 1.1 percent

*Elevation:* 3,600 to 5,800 feet

*Mean annual precipitation:* 25 to 35 inches

*Mean annual air temperature:* 41 to 44 degrees F

*Frost-free period:* 70 to 100 days

*Minor components:* Tamarackcanyon, Anatone, Flyvalley, Harlow, Olot, Geisercreek, Klicker, Bocker, and Ferguson soils

*Present use:* Timber production

*Limitations for use:* Hazard of water erosion, slope, dustiness, depth to bedrock, and depth to a claypan

## ***Cold, Wet Soils on Mountains***

*Number of map units:* 1

*Percentage of survey area:* 0.5 percent

## 20. Mountemily-Troutmeadows-Bucketlake

*Nearly level to very steep, well drained, cold, moderately deep and very deep soils that formed in volcanic ash over colluvium derived from basalt or in volcanic ash over glacial till derived from granite*

*Major landforms:* Moraines and backslopes of mountains

*Percentage of survey area:* 0.5 percent

*Elevation:* 5,400 to 7,000 feet

*Mean annual precipitation:* 30 to 45 inches

*Mean annual air temperature:* 35 to 41 degrees F

*Frost-free period:* 25 to 70 days

*Minor components:* Ferguson and Klicker soils

*Present use:* Timber production

*Limitations for use:* Hazard of water erosion, slope, dustiness, and depth to bedrock



## General Vegetation Zones

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The survey is in two major land resource areas (MLRAs)—Palouse and Nez Perce Prairies (B9) and Northern Rocky Mountains (E43). MLRAs are geographically associated land resource units that are characterized by a particular pattern of soils, climate, water resources, and land uses.

MLRA B9 is characterized by open prairie vegetation and grassland steppe that transitions to forestland as precipitation increases. The mean annual precipitation ranges from 14 to 17 inches in the open grassland areas to 17 to 25 inches in the mixed prairie/forestland areas. Idaho fescue is dominant in the open prairies with an increase in bluebunch wheatgrass on south-facing slopes (fig. 6) and shrubs on north-facing slopes. Basin big sagebrush is absent. The soils, which formed in loess, typically have a silt loam surface layer and a fine textured subsoil.

MLRA E43 is characterized by forestland vegetation with minor amounts of open grassland in areas of shallow soils and areas that receive less precipitation. The mean annual precipitation ranges from about 17 inches to more than 40 inches in the higher mountains. The vegetation is primarily coniferous forest that transitions from ponderosa pine to Douglas fir and grand fir as precipitation increases. Elk sedge and/or pinegrass commonly are dominant in the understory. The soils, which formed in loess and volcanic ash, typically are moderately deep to deep and have a silt loam surface layer.

The vegetation in the survey has been grouped into six general vegetation zones: 1) Warm Lower Canyons, 2) Upper Canyon Drainageways, 3) Valley Bottomland, 4) Open Prairie Plateaus, 5) Forested Plateaus and Mountains/Mixed Prairie, and 6) Cold Mountain Slopes. Each of these zones has similarities in vegetation, soils,



**Figure 6.—Bluebunch wheatgrass in good condition on a south-facing slope in major land resource area B9.**

climate, and topographic features. Zones 1 through 4 are primarily in MLRA B9. Zone 4 is typical of this MLRA. Zones 5 and 6 are primarily in MLRA E43. Plant associations indigenous to each of these zones and riparian areas are discussed in the following paragraphs. The general vegetation zone map is directly correlated to the general soil map. These maps provide excellent data for resource inventory in the survey area.

### **General Vegetation Zone 1—Warm Lower Canyons**

Climate in the low-elevation canyons is warm and dry. These areas are the hottest and driest in the survey area. The mean annual precipitation is low, ranging from 12 to 17 inches. Elevation generally is less than 2,800 feet, but it ranges to 4,000 feet. This vegetation zone corresponds to general soil map units 3 and 4.

Plants well adapted to this zone are bluebunch wheatgrass and sand dropseed. Annual grasses readily invade if the range deteriorates. Plant communities include bluebunch wheatgrass/sand dropseed associations on warmer south-facing slopes and benches and Idaho fescue/bluebunch wheatgrass associations on cooler north-facing slopes.

### **General Vegetation Zone 2—Upper Canyon Drainageways**

Climate in the upper canyon drainageways is warm to cool, and moist. The vegetation is highly variable because of the variability of the aspect, soil depth, precipitation, and elevation. Slopes are steep. Temperature ranges from warm, or mesic, on the lower elevation south-facing slopes to cool, or frigid, on the higher elevation north-facing slopes. Elevation generally is 2,800 to 5,600 feet, but it ranges to as low as 800 feet and as high as 6,200 feet. Precipitation ranges from 15 to 30 inches. This vegetation zone corresponds to general soil map units 5, 6, 7, 15, and 16.

North-facing slopes have deeper soils, and the plant communities reflect climatic changes due to elevation. South-facing slopes have dominantly warm, shallow soils, and the plant communities do not readily reflect climatic changes due to elevation. The plant communities on the north-facing slopes range from Idaho fescue/snowberry associations at the lower elevations to Douglas fir/ninebark associations at the higher, more moist elevations. The soils on the south-facing slopes typically support dominantly bluebunch wheatgrass. Ponderosa pine/snowberry associations are in areas of deeper soils on south-facing slopes that receive more than 17 inches of precipitation.

### **General Vegetation Zone 3—Valley Bottomland**

Valley bottomland occurs at an elevation of 800 to 5,000 feet along valley streams of flood plains, fans, outwash plains, meadows, and low terraces. The mean annual precipitation ranges from 13 to 30 inches. The majority of the productive soils in this zone currently are farmed. The native vegetation adapted to these areas is highly dependent on soil depth, texture, precipitation, and surface and subsurface moisture conditions. This vegetation zone corresponds to general soil map units 1, 2, 8, 9, and 10.

The plant communities in this zone include basin wildrye associations in areas of very deep, well drained, loamy soils on bottomland and in swales, tufted hairgrass/sedge associations in meadows, spruce/cottonwood associations along cool, middle elevation braided river channels, and Idaho fescue in slightly higher areas of moderately deep soils on stream terraces.

### **General Vegetation Zone 4—Open Prairie Plateaus**

Open prairie plateaus occur at an elevation of 2,800 to 5,000 feet. The broad and expansive prairie gradually transitions to forested vegetation as precipitation increases. Precipitation ranges from 13 to 17 inches in the open prairie area. Winters are long, and the temperature regime on all aspects is cool, or frigid. This vegetation zone corresponds to general soil map unit 12.

Idaho fescue is dominant in the natural prairies. It is well adapted to cool conditions. As the preferred species, it decreases with overgrazing and is replaced by bluegrasses, such as Kentucky, Canada, and bulbous bluegrass. The prairies are highly productive, maintaining the appearance of a prairie even when the condition of the vegetation deteriorates.

Typical plant communities include Idaho fescue associations in areas of deeper soils; Sandberg bluegrass associations in areas of very shallow soils, which are less than 10 inches deep to bedrock; and bluebunch wheatgrass associations on drier south-facing slopes.

### **General Vegetation Zone 5—Forested Plateaus and Mountains/ Mixed Prairie**

Forested plateaus and mountains intermixed with prairies occur primarily at an elevation of 2,800 to 5,000 feet, but elevation ranges to 6,200 feet. Prairies are intermingled with forest vegetation along the forest edge. Within the forest, small open areas of range are in areas of very shallow scabland soils and shallow soils on south-facing slopes. Precipitation generally is 17 to 30 inches, but it ranges to as high as 35 inches. Winters are long, and the temperature regime is cool, or frigid. This vegetation zone corresponds to general soil map units 11, 13, 14, 17, 18, and 19.

The open prairies support dominantly Idaho fescue. The forested areas at the lower elevations support dominantly extensive, mixed stands of ponderosa pine and Douglas fir. As elevation and precipitation increase, grand fir becomes dominant. On the drier south-facing slopes, ponderosa pine occurs in areas of deep and very deep soils and bluebunch wheatgrass in areas of shallow soils. On the cooler, moist, north-facing slopes, Douglas fir and taller shrubs are dominant. Very shallow scabland soils within the forested areas support dominantly Sandberg bluegrass and onespoke oatgrass. Small meadows and open swales within the forested areas support dominantly tufted hairgrass. These areas provide excellent forage and diverse vegetation.

Typical plant communities include ponderosa pine/snowberry associations on cool, drier plateaus and south-facing mountain slopes, Douglas fir/snowberry associations on cool, moist plateaus and mountain slopes, grand fir/twinflower associations on cool, wet plateaus and mountain slopes, Idaho fescue associations on drier open prairie areas of plateaus, bluebunch wheatgrass associations in areas of shallow soils on south-facing slopes of plateaus, Sandberg bluegrass/onespoke oatgrass associations in areas of very shallow soils, and tufted hairgrass associations in small meadows and wet swales.

### **General Vegetation Zone 6—Cold Mountain Slopes**

High elevation slopes of the Wallowa Mountains occur at the southern end of the survey area. Elevation generally ranges from 5,400 to 7,000 feet. Precipitation ranges from 30 to 45 inches. Winters are long, and the temperature regime on all aspects is cold, or cryic. This vegetation zone corresponds to general soil map unit 20.

Subalpine fir, spruce, and lodgepole pine, all fire sensitive species, are dominant in



the cold forests. Stands range from dense in areas of deep and very deep soils on north-facing slopes to scattered in areas of shallow soils on south-facing slopes. Open, subalpine forested slopes support dominantly green fescue, a very striking and productive grassland plant. Numerous, small meadows and wet areas are present. In these higher, very cold areas, the growing season is short and the plant communities are fragile. The soils are highly susceptible to erosion because of the cold climate, shallow soil depth, and granitic parent material.

Typical plant communities include grand fir/twinflower associations on lower elevation, steep, moist, north-facing slopes; grand fir/subalpine fir/grouse whortleberry associations on steep, cold, north-facing slopes; subalpine fir/grouse whortleberry associations in higher elevation forests; Idaho fescue/sedge associations in areas of soils that are shallow to bedrock on ridges; green fescue associations on high elevation, open slopes; and sedge associations in subalpine meadows.

## **Riparian Areas**

Riparian areas occur throughout the survey area in all of the vegetation zones. These areas are not shown on the general vegetation zone map because of the scale of the map. Riparian areas provide significant forage and critical wildlife habitat and contribute to water quality. They occur as a wetland transition between permanently saturated wetland and upland areas and are along streams, lakes, and marshy areas. They are dynamic areas with relatively young soils and plant communities that reflect the depth and duration of subsurface moisture.

Highly dependent on temperature and moisture, the vegetation progressively changes from tall willows and cottonwood along lower elevation rivers and streams to spruce and cottonwood in the central part of the Wallowa Valley. Short-stature willows are along higher elevation streams. Successional changes are obvious with the appearance of coyote willow on point bars. Red alder typically occurs along higher gradient gravelly streambanks. Subject to constant flow changes, riparian areas dissipate energy, filter sediment, improve groundwater recharge, and provide habitat for numerous aquatic and terrestrial wildlife species.

## Detailed Soil Map Units

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The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown

on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Minam gravelly loam, 2 to 8 percent slopes, is a phase of the Minam series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Wallowa-Bocker complex, 2 to 15 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Gwin-Klickson-Kettenbach association, 60 to 90 percent slopes, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

In the map unit descriptions that follow, a semitabular format is used. In this format a boldface heading (for example, **Composition**) is used to identify the kind of information grouped directly below it. Introducing each item of information under the heading is an italicized term or phrase (for example, *Landscape position*;) that identifies or describes the information. Many of the boldface headings and introductory terms or phrases are self-explanatory; however, some of them need further explanation. These explanations are provided in the following paragraphs, generally in the order in which they are used in the map unit descriptions.

*Composition* is given for the components identified in the name of the map unit as well as for the contrasting inclusions.

*Inclusions* are areas of components (soils or miscellaneous areas) that differ from the components for which the unit is named. Inclusions can be either similar or contrasting. *Similar inclusions* are components that differ from the components for which the unit is named but that for purposes of use and management can be considered to be the same as the named components. Note that in the "Composition" paragraph a single percentage is provided for a named soil and the similar soils because their use and management are similar.

*Landscape position* refers to the dominant position or positions on which the component is located. In naming landscape positions, an effort has been made to give the specific position of the component.

*Typical profile* is a vertical, two-dimensional section of the soil extending from the surface to a restrictive layer or to a depth of 60 inches or more.

*Permeability* is the quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil.

*Available water capacity* is the capacity of the soil to hold water available for use by most plants. It commonly is expressed as inches of water per inch of soil (see "Glossary").

*Hazard of erosion* refers to the hazard if protective plant cover is removed. The hazard of erosion is constant and cannot be increased or reduced.

*Contrasting inclusions* are components that differ sufficiently from the components for which the unit is named that they would have different use and management if they were extensive enough to be managed separately. For most uses, contrasting inclusions have limited effect on use and management. Inclusions generally are in small areas, and they could not be mapped separately because of the scale used.

Some small areas of strongly contrasting inclusions are identified by a special symbol on the detailed soil maps. A few inclusions may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the inclusions on the landscape.

*Major uses* are the dominant uses at the time the major part of the fieldwork for this survey was completed.

*Major management limitations* are those factors that affect the use of the soils for the major uses.

*General management considerations* provide additional perspective on the suitability and limitations of the unit for the major uses. They may apply to the entire unit or to a given component of the unit.

## **1—Akerite silt loam, 2 to 8 percent slopes**

### ***Composition***

*Akerite and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Toeslopes adjacent to wet meadows

*Landform:* Plateaus, structural benches

*Parent material:* Volcanic ash over colluvium derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Ponderosa pine, western larch, Douglas fir, lodgepole pine, huckleberry, pinegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—slightly decomposed needles

0 to 12 inches—brown and dark yellowish brown silt loam

12 to 30 inches—dark yellowish brown silt loam

30 to 36 inches—dark yellowish brown, mottled silt loam

36 to 45 inches—yellowish brown, mottled silty clay loam

45 to 60 inches—dark yellowish brown silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 36 inches

*Depth to clayey layers:* 14 to 36 inches

*Drainage class:* Moderately well drained

*Depth to water table (apparent):* 2.5 to 3.5 feet in March through June

*Permeability:* Moderately rapid and moderate in the upper part and moderately slow and slow in the lower part

*Available water capacity:* About 14 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Wilkins soils in depressions adjacent to streams
- Olot soils on shoulders

- Tolo soils on adjacent north-facing footslopes of hills
- Tamara soils on north-facing footslopes above 4,000 feet
- Howmeadows soils in wet depressions in old stream meander channels

### ***Major Use***

Timber production

### ***Major Management Limitations***

High water table, depth to clayey layers, dustiness, soil compaction, frost pockets, seedling mortality, plant competition, puddling

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Frost pockets on this soil damage seedlings that are not frost tolerant.
- The water table rises if the vegetation is removed.
- Road construction can block subsurface flows.

## ***2—Akerite silt loam, 8 to 15 percent slopes***

### ***Composition***

*Akerite and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Footslopes adjacent to wet meadows

*Landform:* Plateaus, structural benches

*Parent material:* Volcanic ash over colluvium derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Ponderosa pine, western larch, Douglas fir, lodgepole pine, huckleberry, pinegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—slightly decomposed needles

0 to 12 inches—brown and dark yellowish brown silt loam

12 to 30 inches—dark yellowish brown silt loam

30 to 36 inches—dark yellowish brown, mottled silt loam

36 to 45 inches—yellowish brown, mottled silty clay loam

45 to 60 inches—dark yellowish brown silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 30 inches

*Depth to clayey layers:* 14 to 36 inches

*Drainage class:* Moderately well drained

*Depth to water table (apparent):* 2.5 to 3.5 feet in March through June

*Permeability:* Moderately rapid and moderate in the upper part and moderately slow and slow in the lower part

*Available water capacity:* About 14 inches

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Wilkins soils in depressions adjacent to streams
- Olot soils on shoulders
- Tolo soils on adjacent north-facing footslopes of hills

### ***Major Use***

Timber production

### ***Major Management Limitations***

High water table, dustiness, soil compaction, frost pockets, seedling mortality, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Frost pockets on this soil damage seedlings that are not frost tolerant.
- The water table rises if the vegetation is removed.
- Road construction can block subsurface flows.

## ***3—Albee-Anatone complex, 2 to 15 percent slopes***

### ***Composition***

*Albee and similar soils*—45 percent

*Anatone and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Albee—footslopes and concave backslopes of ravines;

Anatone—shoulders and convex backslopes of ravines

*Landform:* Plateaus

*Parent material:* Albee—mixed loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Albee—Idaho fescue, bluebunch wheatgrass, prairie junegrass;

Anatone—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days



### ***Typical Profile of Albee***

0 to 14 inches—very dark grayish brown silt loam  
 14 to 38 inches—dark yellowish brown silt loam  
 38 inches—basalt

### ***Properties and Qualities of Albee***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Bocker soils on shoulders
- Rock outcrop on shoulders
- Buford soils on footslopes

### ***Major Use***

Albee and Anatone—livestock grazing

### ***Major Management Limitations***

Albee and Anatone—water erosion  
 Anatone—available water capacity, depth to bedrock, stones on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Anatone soil limits construction of water impoundments.
- Droughtiness of the Anatone soil may limit the success of seedings and the choice of species for seedings.
- Livestock tend to graze in the less stony areas, such as areas of the Albee soil.
- The very stony upper layer of the Anatone soil restricts the operation of ground seeding equipment.
- The upper layer of the Anatone soil is saturated following snowmelt.
- Erosion of the easily disturbed surface layer of the soils causes a change in the range site and a loss in the potential for forage production.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.

- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

#### **4—Albee-Bocker complex, 2 to 15 percent slopes**

##### ***Composition***

*Albee and similar soils*—50 percent

*Bocker and similar soils*—40 percent

*Contrasting inclusions*—10 percent

##### ***Setting***

*Landscape position:* Albee—mounds in areas of patterned ground on summits;

Bocker—intermounds in areas of patterned ground on summits

*Landform:* Plateaus, structural benches

*Parent material:* Albee—mixed loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Bocker—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,200 feet

*Native plants:* Albee—Idaho fescue, bluebunch wheatgrass, prairie junegrass;

Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

##### ***Typical Profile of Albee***

0 to 14 inches—very dark grayish brown silt loam

14 to 38 inches—dark yellowish brown silt loam

38 inches—basalt

##### ***Properties and Qualities of Albee***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight or moderate

##### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

##### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1 inch

*Hazard of erosion:* Slight or moderate

##### ***Contrasting Inclusions***

- Anatone soils on intermounds or eroded mounds

- Areas that have been leveled and excess rock removed by equipment; depth to rock in these areas averages 10 to 20 inches

### ***Major Use***

Albee and Bocker—livestock grazing

### ***Major Management Limitations***

Albee and Bocker—water erosion, uneven ground

Bocker—available water capacity, depth to bedrock, cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Bocker soil restricts the rooting depth.
- The shallow depth of the Bocker soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments on the Bocker soil.
- The upper layer of the Bocker soil is saturated following snowmelt.
- Seeding areas of the Bocker soil that are in poor condition is difficult because of the soil depth.
- Droughtiness of the Bocker soil may limit the success of seedings and the choice of species for seedings.
- Erosion of the easily disturbed surface layer of the soils causes a change in the range site and a loss in the potential for forage production.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## ***5—Analulu-Slicklog-Bluecanyon complex, 30 to 60 percent south slopes***

### ***Composition***

*Analulu and similar soils*—30 percent

*Slicklog and similar soils*—30 percent

*Bluecanyon and similar soils*—30 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Analulu—south-facing convex backslopes; Slicklog—south-facing concave backslopes; Bluecanyon—south-facing, narrow convex backslopes

*Landform:* Mountains

*Parent material:* Analulu—colluvium and residuum derived from argillite and other metasedimentary rock with an influence of volcanic ash in the upper part; Slicklog—volcanic ash and colluvium derived from argillite, shale, or conglomerate; Bluecanyon—colluvium and residuum derived from argillite and other metasedimentary rock or metavolcanic rock

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Analulu and Slicklog—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Bluecanyon—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 85 days

***Typical Profile of Analulu***

1 inch to 0—partially decomposed grass, leaves, and moss

0 to 5 inches—very dark grayish brown gravelly fine sandy loam

5 to 21 inches—dark yellowish brown very gravelly loam

21 to 31 inches—brown very gravelly loam

31 inches—shale

***Properties and Qualities of Analulu***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

***Typical Profile of Slicklog***

1 inch to 0—partially decomposed twigs and needles

0 to 6 inches—very dark brown gravelly loam

6 to 16 inches—very dark brown very gravelly loam

16 to 22 inches—very dark grayish brown gravelly loam

22 to 49 inches—very dark grayish brown very gravelly loam

49 to 60 inches—dark grayish brown extremely stony sandy loam

***Properties and Qualities of Slicklog***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

***Typical Profile of Bluecanyon***

0 to 5 inches—very dark brown very gravelly silt loam

5 to 13 inches—very dark grayish brown very gravelly loam

13 to 17 inches—dark brown very gravelly loam

17 inches—fractured argillite

***Properties and Qualities of Bluecanyon***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1 inch

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Rock outcrop on backslopes
- Eastpine soils on middle backslopes

### ***Major Uses***

Analulu and Slicklog—timber production

Bluecanyon—livestock grazing

### ***Major Management Limitations***

Analulu and Slicklog—sheet and rill erosion, equipment limitation, soil compaction, soil displacement, seedling mortality, plant competition, fire damage, puddling, dustiness

Analulu—cut and fill erosion, windthrow

Bluecanyon—depth to bedrock, water erosion, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Bluecanyon soil restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the Analulu and Slicklog soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Analulu soil to reduce soil loss from cut and fill slopes.
- Because of the depth to bedrock, trees on the Analulu soil may be blown down when the soil is wet and winds are strong.

## ***6—Analulu-Slicklog-Rock outcrop complex, 60 to 90 percent south slopes***

### ***Composition***

*Analulu and similar soils*—40 percent

*Slicklog and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position:* Analulu—south-facing convex backslopes; Slicklog—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Mountains

*Parent material:* Analulu—colluvium and residuum derived from argillite and other metasedimentary rock with an influence of volcanic ash in the upper part; Slicklog—volcanic ash and colluvium derived from argillite, shale, or conglomerate

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Analulu and Slicklog—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 85 days

### **Typical Profile of Analulu**

1 inch to 0—partially decomposed grass, leaves, and moss  
0 to 5 inches—very dark grayish brown gravelly fine sandy loam  
5 to 21 inches—dark yellowish brown very gravelly loam  
21 to 31 inches—brown very gravelly loam  
31 inches—shale

### **Properties and Qualities of Analulu**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### **Typical Profile of Slicklog**

1 inch to 0—partially decomposed twigs and needles  
0 to 6 inches—very dark brown gravelly loam  
6 to 16 inches—very dark brown very gravelly loam  
16 to 22 inches—very dark grayish brown gravelly loam  
22 to 49 inches—very dark grayish brown very gravelly loam  
49 to 60 inches—dark grayish brown extremely stony sandy loam

### **Properties and Qualities of Slicklog**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Very severe

### **Contrasting Inclusions**

- Bluecanyon soils on convex backslopes
- Eastpine soils on middle backslopes



### ***Major Use***

Analulu and Slicklog—timber production

### ***Major Management Limitations***

Analulu and Slicklog—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, seedling mortality, plant competition, fire damage, cut and fill erosion, puddling, dustiness

Analulu—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on the Analulu soil may be blown down when the soil is wet and winds are strong.
- Rock outcrop forces yarding paths to converge, which increases the risk of erosion throughout the unit.

## ***7—Anatone-Bocker complex, 2 to 15 percent slopes***

### ***Composition***

*Anatone and similar soils*—50 percent

*Bocker and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Anatone—concave summits; Bocker—convex summits (fig. 7)

*Landform*: Plateaus, structural benches

*Parent material*: Loess and colluvium derived from basalt

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Anatone—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam  
12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Moderate

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam  
2 to 7 inches—dark brown very cobbly silt loam  
7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Rock outcrop scattered throughout and on shoulders
- Albee soils on remnant mounds

### ***Major Use***

Anatone and Bocker—livestock grazing



Figure 7.—Typical area of Anatone-Bocker complex, 2 to 15 percent slopes, on nonforested summit in foreground. This area is above Big Canyon and Water Canyon.

### ***Major Management Limitations***

Anatone and Bocker—available water capacity, depth to bedrock, water erosion

Anatone—stones on soil surface

Bocker—cobblestones on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness.
- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Livestock tend to graze in the less stony areas.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The very stony upper layer of the Anatone soil restricts the operation of ground seeding equipment.

## ***8—Anatone-Bocker complex, 15 to 30 percent south slopes***

### ***Composition***

*Anatone and similar soils*—50 percent

*Bocker and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Anatone—south-facing footslopes and concave backslopes;

Bocker—south-facing shoulders and convex backslopes

*Landform:* Plateaus, structural benches

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Anatone—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rock outcrop on shoulders
- Fivebit soils on footslopes

### ***Major Use***

Anatone and Bocker—livestock grazing

### ***Major Management Limitations***

Anatone and Bocker—available water capacity, depth to bedrock, water erosion

Anatone—stones on soil surface

Bocker—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth of the soils limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- Seeding areas that are in poor condition is difficult because of the depth to bedrock and the stones or cobbles in the soils.
- Erosion of the easily disturbed surface layer of the soils causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Livestock tend to graze in the less stony areas.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The very stony upper layer of the Anatone soil restricts the operation of ground seeding equipment.

## **9—Anatone-Bocker complex, 30 to 60 percent south slopes**

### ***Composition***

*Anatone and similar soils*—50 percent

*Bocker and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Anatone—south-facing concave backslopes; Bocker—south-facing convex backslopes

*Landform:* Hills and mountains

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Anatone—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Klicker soils on concave backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Fivebit soils on convex backslopes

### ***Major Use***

Anatone and Bocker—livestock grazing

### ***Major Management Limitations***

Anatone and Bocker—slope, available water capacity, depth to bedrock, water erosion

Anatone—stones on soil surface

Bocker—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the soils causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock restricts the rooting depth.
- The shallow depth of the soils limits the use of conventional fencing and makes special design of fences necessary.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## ***10—Anatone-Bocker-Fivebit complex, 0 to 15 percent slopes***

### ***Composition***

*Anatone and similar soils*—35 percent

*Bocker and similar soils*—30 percent

*Fivebit and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Anatone—concave summits; Bocker—convex summits;

Fivebit—V-shaped drainageways on summits

*Landform:* Plateaus, structural benches

*Parent material:* Anatone and Bocker—loess and colluvium derived from basalt;

Fivebit—colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Anatone—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue; Fivebit—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 35 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches



*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam  
 2 to 7 inches—dark brown very cobbly silt loam  
 7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 0.5 inch  
*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Fivebit***

0 to 4 inches—very dark grayish brown very gravelly sandy loam  
 4 to 9 inches—dark brown extremely gravelly sandy loam  
 9 to 15 inches—dark brown extremely gravelly sandy loam  
 15 to 19 inches—brown extremely gravelly sandy loam  
 19 inches—basalt

### ***Properties and Qualities of Fivebit***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Klicker soils on footslopes
- Harlow soils on shoulders

### ***Major Uses***

Anatone and Bocker—livestock grazing  
 Fivebit—timber production

### ***Major Management Limitations***

Anatone, Bocker, and Fivebit—depth to bedrock, permeability, water erosion, rock fragments on and in soil surface, available water capacity, cool winter temperatures  
 Fivebit—seedling mortality, windthrow, plant competition, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.

- The very stony or extremely cobbly upper layer restricts the operation of ground seeding equipment.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Because the Fivebit soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***11—Anatone-Bocker-Fivebit complex, 30 to 60 percent south slopes***

#### ***Composition***

*Anatone and similar soils—40 percent*

*Bocker and similar soils—25 percent*

*Fivebit and similar soils—20 percent*

*Contrasting inclusions—15 percent*

#### ***Setting***

*Landscape position:* Anatone—south-facing concave backslopes; Bocker—south-facing convex backslopes; Fivebit—south-facing V-shaped drainageways on backslopes

*Landform:* Canyons

*Parent material:* Anatone and Bocker—loess and colluvium derived from basalt; Fivebit—colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Anatone and Bocker—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Fivebit—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 35 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

#### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Typical Profile of Fivebit***

0 to 4 inches—very dark grayish brown very gravelly sandy loam

4 to 9 inches—dark brown extremely gravelly sandy loam

9 to 15 inches—dark brown extremely gravelly sandy loam

15 to 19 inches—brown extremely gravelly sandy loam

19 inches—basalt

### ***Properties and Qualities of Fivebit***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Klicker soils on concave backslopes
- Harlow soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes

### ***Major Uses***

Anatone and Bocker—livestock grazing

Fivebit—timber production

### ***Major Management Limitations***

Anatone, Bocker, and Fivebit—depth to bedrock, permeability, water erosion, slope, available water capacity, cool winter temperatures

Fivebit—seedling mortality, windthrow, plant competition, sheet and rill erosion, equipment limitation, soil displacement, fire damage, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Anatone and Bocker soils restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils

are firm and the preferred forage plants can withstand the grazing pressure.

- Droughtiness may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.

#### **Timber production**

- Because the Fivebit soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads and skid trails are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***12—Anatone-Cherrycreek-Imnaha complex, 30 to 60 percent north slopes***

### ***Composition***

*Anatone and similar soils*—35 percent

*Cherrycreek and similar soils*—30 percent

*Imnaha and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Anatone—north-facing convex backslopes; Cherrycreek—north-facing concave backslopes; Imnaha—north-facing middle backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Cherrycreek and Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Cherrycreek and Imnaha—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Cherrycreek***

0 to 9 inches—black very cobbly silt loam

9 to 28 inches—very dark grayish brown extremely cobbly silt loam

28 to 43 inches—brown extremely cobbly silt loam

43 to 53 inches—reddish brown extremely cobbly silt loam

53 inches—basalt

### ***Properties and Qualities of Cherrycreek***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Getaway soils on concave backslopes
- Bocker soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on shoulders and small exposures of bedrock on convex backslopes

### ***Major Use***

Anatone, Cherrycreek, and Imnaha—livestock grazing

### ***Major Management Limitations***

Anatone, Cherrycreek, and Imnaha—water erosion, slope, cool winter temperatures

Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.

### **13—Anatone-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes**

#### ***Composition***

*Anatone and similar soils*—40 percent

*Imnaha, moist, and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Anatone—north-facing convex backslopes; Imnaha—north-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Imnaha—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry

*Climatic factors:*

Mean annual precipitation—17 to 25 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

#### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

#### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

#### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches



*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Cherrycreek soils on concave backslopes
- Linecreek soils in V-shaped drainageways of backslopes
- Bocker soils on convex backslopes

### ***Major Use***

Anatone and Imnaha—livestock grazing

### ***Major Management Limitations***

Anatone, Imnaha, and Rock outcrop—slope

Anatone and Imnaha—water erosion, cool winter temperatures

Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as constructions of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.

## ***14—Anatone-Kamela complex, 30 to 60 percent slopes***

### ***Composition***

*Anatone and similar soils*—45 percent

*Kamela and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Anatone—convex backslopes; Kamela—concave backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Kamela—colluvium derived from basalt mixed with volcanic ash and loess in the upper part

*Elevation:* 3,000 to 6,200 feet; mapped on south-facing slopes at the higher elevations and north-facing slopes at the lower elevations

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Kamela—grand fir, Douglas fir, ponderosa pine, elk sedge, pinegrass, heartleaf arnica

*Climatic factors:*

- Mean annual precipitation—17 to 30 inches
- Mean annual air temperature—41 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile of Anatone***

- 0 to 3 inches—very dark grayish brown very stony silt loam
- 3 to 6 inches—very dark grayish brown very cobbly silt loam
- 6 to 12 inches—dark brown very cobbly silty clay loam
- 12 inches—basalt

***Properties and Qualities of Anatone***

- Depth to bedrock:* 10 to 20 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 2 inches
- Hazard of erosion:* Severe

***Typical Profile of Kamela***

- 1 inch to 0—partially decomposed needles and twigs
- 0 to 8 inches—dark yellowish brown gravelly loam
- 8 to 22 inches—dark brown very cobbly loam
- 22 inches—basalt

***Properties and Qualities of Kamela***

- Depth to bedrock:* 20 to 40 inches
- Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 4 inches
- Hazard of erosion:* Severe

***Contrasting Inclusions***

- Klicker soils on south-facing concave backslopes
- Getaway soils on north-facing backslopes
- Bocker soils on convex backslopes
- Olot soils on middle backslopes

***Major Uses***

- Anatone—livestock grazing
- Kamela—timber production

***Major Management Limitations***

- Anatone and Kamela—slope, water erosion, cool winter temperatures
- Anatone—depth to bedrock, very stony soil surface, available water capacity
- Kamela—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, seedling mortality, windthrow, plant competition, fire damage, puddling, dustiness

***General Management Considerations*****Livestock grazing**

- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the Kamela soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***15—Anatone-Klicker-Rock outcrop complex, 60 to 90 percent south slopes***

#### ***Composition***

*Anatone and similar soils*—50 percent

*Klicker and similar soils*—30 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Anatone—south-facing convex backslopes; Klicker—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Klicker—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Very severe

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles  
 0 to 3 inches—very dark grayish brown stony silt loam  
 3 to 10 inches—dark brown cobbly silt loam  
 10 to 18 inches—dark brown very cobbly silty clay loam  
 18 to 24 inches—dark brown extremely cobbly silty clay loam  
 24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Fivebit soils on middle backslopes

### ***Major Uses***

Anatone—livestock grazing  
 Klicker—timber production

### ***Major Management Limitations***

Anatone, Klicker, and Rock outcrop—slope  
 Anatone and Klicker—water erosion, depth to bedrock, available water capacity, stones on soil surface  
 Klicker—equipment operability, permeability, soil compaction, droughtiness, seedling mortality, cut and fill erosion, soil displacement, plant competition, fire damage, windthrow

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness may limit the success of seedlings and the choice of species for

broadcast seedings following natural fires of high intensity.

- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion throughout the unit.
- Rock outcrop can make tree planting difficult.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***16—Anatone-Linecreek-Rock outcrop complex, 60 to 90 percent south slopes***

#### ***Composition***

*Anatone and similar soils*—50 percent

*Linecreek and similar soils*—25 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Anatone—south-facing convex backslopes; Linecreek—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Linecreek—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part

*Elevation:* 4,000 to 5,800 feet

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Linecreek—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 35 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Very severe

### ***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam  
 9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam  
 22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam  
 35 to 50 inches—yellowish brown extremely cobbly fine sandy loam  
 50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* About 11 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Klicker soils on middle backslopes
- Tolo soils on footslopes and lower backslopes

### ***Major Uses***

Anatone—livestock grazing  
 Linecreek—timber production

### ***Major Management Limitations***

Anatone, Linecreek, and Rock outcrop—slope  
 Anatone and Linecreek—water erosion  
 Anatone—depth to bedrock, very stony soil surface, available water capacity, cool winter temperatures, stability  
 Linecreek—sheet and rill erosion, cut and fill erosion, equipment limitations, soil displacement, dustiness, seedling mortality, plant competition, fire damage

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Droughtiness may limit the success of seedlings and the choice of species for



broadcast seedings following natural fires of high intensity.

- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion throughout the unit.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads are firm when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***17—Anatone-Olot complex, 30 to 60 percent south slopes***

#### ***Composition***

*Anatone and similar soils*—50 percent

*Olot and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Anatone—south-facing convex backslopes; Olot—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Olot—volcanic ash over colluvium and residuum derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass; Olot—Douglas fir, grand fir, western larch, scattered ponderosa pine

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Harlow soils on concave backslopes
- Klicker soils on adjacent south-facing backslopes and narrow transition areas between the Anatone and Olot soils
- Rock outcrop on shoulders and convex backslopes

### ***Major Uses***

Anatone—livestock grazing

Olot—timber production

### ***Major Management Limitations***

Olot and Anatone—water erosion, slope

Anatone—depth to bedrock, available water capacity, very stony soil surface

Olot—soil compaction, seedling mortality, plant competition, windthrow, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.

**Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***18—Anatone-Rock outcrop-Clearline complex, 60 to 90 percent south slopes***

***Composition***

*Anatone and similar soils*—45 percent

*Rock outcrop*—25 percent

*Clearline and similar soils*—15 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position:* Anatone—south-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes; Clearline—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Clearline—volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Clearline—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

***Typical Profile of Clearline***

0 to 4 inches—very dark grayish brown very gravelly silt loam

4 to 16 inches—very dark grayish brown very gravelly silt loam

16 to 26 inches—dark brown very gravelly fine sandy loam

26 to 36 inches—yellowish brown very gravelly fine sandy loam

36 to 42 inches—dark yellowish brown very cobbly loam

42 to 55 inches—brown very cobbly loam

55 inches—basalt

### ***Properties and Qualities of Clearline***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Imnaha soils on concave backslopes
- Bocker soils on convex backslopes
- Klicker soils on concave backslopes

### ***Major Use***

Anatone and Clearline—livestock grazing

### ***Major Management Limitations***

Anatone, Rock outcrop, and Clearline—slope

Anatone and Clearline—water erosion, cool winter temperatures

Anatone—depth to bedrock, water erosion, available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.

## ***19—Anatone-Rock outcrop-Fivebit complex, 60 to 90 percent south slopes***

### ***Composition***

*Anatone and similar soils*—40 percent

*Rock outcrop*—25 percent

*Fivebit and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Anatone—south-facing convex backslopes; Rock outcrop

(horizontal layers of exposed bedrock)—south-facing backslopes; Fivebit—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Fivebit—colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,800 feet

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Fivebit—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 35 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Fivebit***

0 to 4 inches—very dark grayish brown very gravelly sandy loam

4 to 9 inches—dark brown extremely gravelly sandy loam

9 to 15 inches—dark brown extremely gravelly sandy loam

15 to 19 inches—brown extremely gravelly sandy loam

19 inches—basalt

### ***Properties and Qualities of Fivebit***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Imnaha soils on concave backslopes
- Klicker soils on concave backslopes

### ***Major Uses***

Anatone—livestock grazing

Fivebit—timber production

### ***Major Management Limitations***

Anatone, Rock outcrop, and Fivebit—slope

Anatone and Fivebit—water erosion, depth to bedrock, slope, available water capacity, cool winter temperatures, stability

Anatone—very stony soil surface

Fivebit—sheet and rill erosion, cut and fill erosion, equipment limitations, soil displacement, seedling mortality, windthrow, plant competition, fire damage, puddling, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion throughout the unit.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***20—Anatone-Rock outcrop-Imnaha complex, 60 to 90 percent north slopes***

### ***Composition***

*Anatone and similar soils*—40 percent

*Rock outcrop*—25 percent

*Imnaha and similar soils*—20 percent

*Contrasting inclusions*—15 percent



### ***Setting***

*Landscape position:* Anatone—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes; Imnaha—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Imnaha—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Cherrycreek soils on concave backslopes
- Linecreek soils in V-shaped drainageways on concave backslopes
- Bocker soils on convex backslopes

### ***Major Use***

Anatone and Imnaha—livestock grazing

### ***Major Management Limitations***

Anatone, Imnaha, and Rock outcrop—slope

Anatone and Imnaha—water erosion, cool winter temperatures

Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.

## ***21—Balm-Catherine complex, 0 to 3 percent slopes***

### ***Composition***

*Balm and similar soils*—50 percent

*Catherine and similar soils*—40 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Balm and Catherine—nearly level areas adjacent to meander channels

*Landform:* Flood plains

*Parent material:* Stratified mixed alluvium

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Tufted hairgrass, sedge, rush, bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Balm***

0 to 3 inches—very dark gray very fine sandy loam

3 to 15 inches—very dark grayish brown very fine sandy loam

15 to 19 inches—very dark grayish brown fine sandy loam

19 to 27 inches—dark grayish brown fine sandy loam

27 to 61 inches—multicolored very gravelly loamy sand

### ***Properties and Qualities of Balm***

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly sandy layer:* 20 to 35 inches

*Drainage class:* Somewhat poorly drained

*Depth to water table (apparent):* 1 to 2 feet in January through June

*Permeability:* Moderate in the upper part and rapid in the lower part

*Available water capacity:* About 6 inches

*Frequency of flooding:* Rare in December through May

*Hazard of erosion:* Slight

### ***Typical Profile of Catherine***

0 to 6 inches—very dark gray silt loam

6 to 22 inches—very dark brown silt loam

22 to 28 inches—very dark gray silt loam  
 28 to 41 inches—dark grayish brown, mottled silt loam  
 41 to 46 inches—dark grayish brown silty clay loam  
 46 to 60 inches—dark grayish brown very gravelly loamy coarse sand

### ***Properties and Qualities of Catherine***

*Depth to bedrock:* More than 60 inches  
*Depth to stratified very gravelly layer:* 40 to 60 inches  
*Drainage class:* Somewhat poorly drained  
*Depth to water table (apparent):* 1.5 to 3.0 feet in December through June  
*Permeability:* Moderate  
*Available water capacity:* About 11 inches  
*Frequency of flooding:* Occasional in December through May  
*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Hershals soils in depressions on lower flood plains
- Snow soils on slightly higher terraces
- Veazie and Voats soils on lower flood plains
- Endoaquolls in depressions on outwash terraces

### ***Major Use***

Balm and Catherine—hay and pasture

### ***Major Management Limitations***

Balm and Catherine—high water table, flooding, depth to very gravelly sandy layers

### ***General Management Considerations***

#### **Hay and pasture**

- Periods of inundation may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm.
- The potential for seepage limits construction of water impoundments.

## ***22—Bittercreek-Mippon complex, 0 to 3 percent slopes***

### ***Composition***

*Bittercreek and similar soils*—65 percent  
*Mippon and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Bittercreek—old stream meander channels; Mippon—convex rises

*Landform:* Flood plains

*Parent material:* Bittercreek—mixed alluvium with an influence of volcanic ash in the upper part; Mippon—mixed alluvium

*Elevation:* 3,100 to 3,700 feet

*Native plants:* Bittercreek—tufted hairgrass, sedges, rushes; Mippon—Engelmann spruce, black cottonwood, ponderosa pine, Rocky Mountain juniper, willow, birch, rose, sedge

*Climatic factors:*

- Mean annual precipitation—18 to 40 inches
- Mean annual air temperature—41 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile of Bittercreek***

- 0 to 11 inches—very dark brown, mottled silt loam
- 11 to 19 inches—dark grayish brown, mottled very fine sandy loam
- 19 to 39 inches—dark grayish brown, mottled very cobbly loamy sand
- 39 to 60 inches—multicolored extremely cobbly loamy coarse sand

***Properties and Qualities of Bittercreek***

- Depth to bedrock:* More than 60 inches
- Depth to very cobbly sandy layer:* 15 to 30 inches
- Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches
- Drainage class:* Poorly drained
- Depth to water table (apparent):* 0.5 to 1.5 feet in February through July
- Permeability:* Moderate in the upper part and rapid in the lower part
- Available water capacity:* About 6 inches
- Frequency of flooding:* Rare in February through April
- Hazard of erosion:* Slight

***Typical Profile of Mippon***

- 2 inches to 0—partially decomposed roots, twigs, and needles
- 0 to 3 inches—very dark grayish brown loam
- 3 to 6 inches—very dark grayish brown very fine sandy loam
- 6 to 10 inches—very dark grayish brown fine sandy loam
- 10 to 21 inches—dark brown extremely gravelly loamy sand
- 21 to 60 inches—very dark grayish brown extremely cobbly loamy coarse sand

***Properties and Qualities of Mippon***

- Depth to bedrock:* More than 60 inches
- Depth to extremely gravelly layer:* 10 to 20 inches
- Drainage class:* Moderately well drained
- Depth to water table (apparent):* 3 to 5 feet in February through April
- Permeability:* Moderate
- Available water capacity:* About 3 inches
- Frequency of flooding:* Rare in February through April
- Hazard of erosion:* Slight

***Contrasting Inclusions***

- Endoaquolls in old stream meander channels
- Hapludolls on adjacent fan terraces

***Major Uses***

- Bittercreek—livestock grazing, wildlife habitat (fig. 8)
- Mippon—timber production, wildlife habitat

***Major Management Limitations***

- Bittercreek—high water table, rare flooding, frost heaving, depth to the very cobbly layer
- Mippon—rare flooding, soil compaction, depth to the extremely gravelly layer, high



**Figure 8.—Typical area of Bittercreek-Mippon complex, 0 to 3 percent slopes, in foreground. This area is used for livestock grazing and wildlife habitat. It is at the mouth of Bear Creek.**

water table, available water capacity, permeability, seedling mortality, plant competition, windthrow

### ***General Management Considerations***

#### **Livestock grazing**

- Wetness of the soil during the growing season may damage new seedlings and limit the choice of species for range seedlings.
- A seasonal high water table increases the amount of moisture in the soil.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Because of the high potential for frost action, there is a risk of winterkill and seedling damage.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- In some areas, larger trees may obtain additional moisture by extending roots into adjacent areas of the Bittercreek soil.
- Because of the sandy lower layers, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.

#### **Wildlife habitat**

- Grazing should be regulated to leave adequate nesting cover for waterfowl.

## **23—Bocker extremely cobbly silt loam, 2 to 8 percent slopes**

### ***Composition***

*Bocker and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Gullies and other eroded positions on summits

*Landform*: Plateaus, structural benches

*Parent material*: Loess and colluvium derived from basalt

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Soil Properties and Qualities***

*Depth to bedrock*: 4 to 10 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 1 inch

*Hazard of erosion*: Slight or moderate

### ***Contrasting Inclusions***

- Rubble land in drainageways
- Anatone soils scattered throughout

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Depth to bedrock, available water capacity, cobbles on soil surface, water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- Seeding areas that are in poor condition is difficult because of the soil depth or cobbles, or both.
- The upper layer is saturated following snowmelt.
- Droughtiness may limit the success of seedings and the choice of species for seedings.



- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## **24—Bocker-Anatone-Rock outcrop complex, 2 to 15 percent slopes**

### ***Composition***

*Bocker and similar soils*—60 percent

*Anatone and similar soils*—15 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Bocker—convex summits; Anatone—concave summits;

Rock outcrop—scattered throughout and near shoulders

*Landform:* Plateaus, structural benches

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,500 feet

*Native plants:* Bocker and Anatone—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Albee soils on remnant mounds of summits
- Fivebit soils in concave areas of summits

### ***Major Use***

Bocker and Anatone—livestock grazing

### ***Major Management Limitations***

Bocker and Anatone—short growing season, cool winter temperatures, depth to bedrock, permeability, water erosion, available water capacity  
 Anatone—very stony soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The very stony upper layer of the Anatone soil restricts the operation of ground seeding equipment.

## ***25—Bocker-Anatone-Rock outcrop complex, 15 to 30 percent slopes***

### ***Composition***

*Bocker and similar soils*—60 percent  
*Anatone and similar soils*—15 percent  
*Rock outcrop*—10 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Bocker—shoulders and convex backslopes; Anatone—footslopes and concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—scattered throughout and near shoulders  
*Landform:* Plateaus, structural benches  
*Parent material:* Loess and colluvium derived from basalt  
*Elevation:* 3,400 to 5,500 feet  
*Native plants:* Bocker and Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat  
*Climatic factors:*  
     Mean annual precipitation—17 to 30 inches  
     Mean annual air temperature—42 to 45 degrees F  
     Frost-free period—70 to 100 days

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam  
 7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 0.5 inch  
*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Imnaha soils on footslopes and concave backslopes
- Albee soils on footslopes

### ***Major Use***

Bocker and Anatone—livestock grazing

### ***Major Management Limitations***

Bocker, Anatone, Rock outcrop—slope  
 Bocker and Anatone—cool winter temperatures, depth to bedrock, permeability,  
 water erosion, available water capacity  
 Anatone—very stony soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.

- Livestock tend to graze in the less stony areas.
- The very stony upper layer of the Anatone soil restricts the operation of ground seeding equipment.

## ***26—Bocker-Clearline-Rock outcrop complex, 60 to 90 percent south slopes***

### ***Composition***

*Bocker and similar soils*—50 percent

*Clearline and similar soils*—20 percent

*Rock outcrop*—20 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Bocker—south-facing convex backslopes; Clearline—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Bocker—loess and colluvium derived from basalt; Clearline—volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Bocker—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Clearline—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Very severe

### ***Typical Profile of Clearline***

0 to 4 inches—very dark grayish brown very gravelly silt loam

4 to 16 inches—very dark grayish brown very gravelly silt loam

16 to 26 inches—dark brown very gravelly fine sandy loam

26 to 36 inches—yellowish brown very gravelly fine sandy loam

36 to 42 inches—dark yellowish brown very cobbly loam

42 to 55 inches—brown very cobbly loam

55 inches—basalt

### ***Properties and Qualities of Clearline***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Imnaha soils on concave footslopes
- Anatone soils on backslopes
- Klicker soils on concave backslopes

### ***Major Use***

Bocker and Clearline—livestock grazing

### ***Major Management Limitations***

Bocker, Clearline, Rock outcrop—slope

Bocker and Clearline—water erosion, cool winter temperatures

Bocker—depth to bedrock, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Bocker soil restricts the rooting depth.
- The shallow depth of the Bocker soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Bocker soil causes a change in the range site and a loss in the potential for forage production.

## ***27—Bocker-Imnaha-Rock outcrop complex, 30 to 60 percent south slopes***

### ***Composition***

*Bocker and similar soils*—40 percent

*Imnaha and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Bocker—south-facing convex backslopes; Imnaha—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Bocker—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Bocker—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Imnaha—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

- Mean annual precipitation—17 to 30 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile of Bocker***

- 0 to 2 inches—very dark brown extremely cobbly silt loam
- 2 to 7 inches—dark brown very cobbly silt loam
- 7 inches—basalt with coatings of clay in the cracks

***Properties and Qualities of Bocker***

- Depth to bedrock:* 4 to 10 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 1 inch
- Hazard of erosion:* Severe

***Typical Profile of Imnaha***

- 0 to 5 inches—black gravelly silt loam
- 5 to 17 inches—very dark gray gravelly silt loam
- 17 to 21 inches—very dark grayish brown very gravelly silt loam
- 21 to 24 inches—dark brown very gravelly loam
- 24 inches—basalt

***Properties and Qualities of Imnaha***

- Depth to bedrock:* 20 to 40 inches
- Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 6 inches
- Hazard of erosion:* Severe

***Contrasting Inclusions***

- Klicker soils on concave backslopes
- Anatone soils on middle backslopes

***Major Use***

Bocker and Imnaha—livestock grazing

***Major Management Limitations***

- Bocker, Imnaha, and Rock outcrop—slope
- Bocker and Imnaha—water erosion, cool winter temperatures
- Bocker—depth to bedrock, available water capacity

***General Management Considerations******Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Bocker soil restricts the rooting depth.
- The shallow depth of the Bocker soil limits the use of conventional fencing and makes special design of fences necessary.



- Erosion of the easily disturbed surface layer of the Bocker soil causes a change in the range site and a loss in the potential for forage production.

## **28—Bridgewater extremely stony sandy loam, 0 to 15 percent slopes**

### **Composition**

*Bridgewater and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Landscape position*: Flood plains and alluvial fans adjacent to streams or rivers

*Landform*: Canyons

*Parent material*: Stratified mixed alluvium

*Elevation*: 800 to 1,000 feet

*Native plants*: Willow, basin wildrye, cottonwood, alder, sedge, hawthorn, rose, rush

*Climatic factors*:

Mean annual precipitation—12 to 14 inches

Mean annual air temperature—50 to 52 degrees F

Frost-free period—135 to 150 days

### **Typical Profile**

0 to 8 inches—very dark brown extremely stony sandy loam

8 to 30 inches—very dark grayish brown extremely cobbly sandy loam

30 to 60 inches—very dark grayish brown extremely cobbly loamy sand

### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Depth to extremely cobbly sandy layer*: 20 to 40 inches

*Drainage class*: Well drained

*Permeability*: Moderately rapid

*Available water capacity*: About 3 inches

*Frequency of flooding*: Occasional in January through May

*Hazard of erosion*: Slight or moderate

### **Contrasting Inclusions**

- Riverwash along the Snake and Grande Ronde Rivers

### **Major Use**

Livestock grazing

### **Major Management Limitations**

Flooding, stoniness of the surface, available water capacity, seepage, depth to extremely cobbly and sandy layers

### **General Management Considerations**

#### **Livestock grazing**

- Periods of inundation may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.

- Heavy season-long grazing in riparian areas may decrease the abundance of plants that help to stabilize streambanks and moderate water temperatures.
- Livestock tend to graze in the less stony areas.
- The extremely stony upper layer restricts the operation of ground seeding equipment.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The risk of seepage limits construction of water impoundments.
- The low annual precipitation limits forage production.

## ***29—Btree-Flycreek complex, 15 to 30 percent north slopes***

### ***Composition***

*Btree and similar soils*—45 percent

*Flycreek and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Btree—north-facing footslopes and concave backslopes;

Flycreek—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Volcanic ash over colluvium and residuum derived from acidic tuff

*Elevation:* 3,600 to 5,400 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Btree***

1 inch to 0—partially decomposed twigs and needles

0 to 7 inches—brown silt loam

7 to 17 inches—dark yellowish brown loam

17 to 22 inches—brown cobbly loam

22 to 31 inches—dark brown very cobbly clay

31 to 42 inches—dark brown very gravelly clay

42 inches—soft tuff

### ***Properties and Qualities of Btree***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Depth to claypan:* 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Flycreek***

3 inches to 0—partially decomposed moss, needles, and twigs

0 to 6 inches—very dark grayish brown silt loam

6 to 17 inches—brown silt loam

17 to 20 inches—dark yellowish brown gravelly clay loam

20 to 31 inches—dark yellowish brown gravelly clay

31 to 35 inches—brown gravelly clay loam

35 inches—weathered acidic basalt

### ***Properties and Qualities of Flycreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 22 inches

*Depth to claypan:* 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Contrasting Inclusions***

- Flyvalley soils on shoulders
- Geisercreek soils on footslopes
- Anatone soils on convex backslopes and shoulders

### ***Major Use***

Btree and Flycreek—timber production

### ***Major Management Limitations***

Btree and Flycreek—depth to claypan, sheet and rill erosion, cut and fill erosion, soil compaction, plant competition, puddling, dustiness

Btree—soil displacement

Flycreek—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- The Btree soil is susceptible to being pushed from its natural position during equipment operations.
- Because of the depth to bedrock, trees on the Flycreek soil may be blown down when the soil is wet and winds are strong.

### **30—Btree-Flycreek complex, 30 to 60 percent north slopes**

#### **Composition**

*Btree and similar soils*—45 percent

*Flycreek and similar soils*—40 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Btree—north-facing concave backslopes; Flycreek—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Volcanic ash over colluvium and residuum derived from acidic tuff

*Elevation:* 3,600 to 5,400 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### **Typical Profile of Btree**

1 inch to 0—partially decomposed twigs and needles

0 to 7 inches—brown silt loam

7 to 17 inches—dark yellowish brown loam

17 to 22 inches—brown cobbly loam

22 to 31 inches—dark brown very cobbly clay

31 to 42 inches—dark brown very gravelly clay

42 inches—soft tuff

#### **Properties and Qualities of Btree**

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Depth to claypan:* 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

#### **Typical Profile of Flycreek**

3 inches to 0—partially decomposed moss, needles, and twigs

0 to 6 inches—very dark grayish brown silt loam

6 to 17 inches—brown silt loam

17 to 20 inches—dark yellowish brown gravelly clay loam

20 to 31 inches—dark yellowish brown gravelly clay

31 to 35 inches—brown gravelly clay loam

35 inches—weathered acidic basalt

### ***Properties and Qualities of Flycreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 22 inches

*Depth to claypan:* 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Contrasting Inclusions***

- Flyvalley soils on convex backslopes
- Geisercreek soils on footslopes
- Anatone soils on convex backslopes

### ***Major Use***

Btree and Flycreek—timber production

### ***Major Management Limitations***

Btree and Flycreek—depth to claypan, sheet and rill erosion, cut and fill erosion, soil compaction, soil displacement, plant competition, puddling, dustiness

Flycreek—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft and sticky when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because of the depth to bedrock, trees on the Flycreek soil may be blown down when the soil is wet and winds are strong.

## ***31—Btree-Flycreek-Anatone complex, 30 to 60 percent north slopes***

### ***Composition***

*Btree and similar soils*—30 percent

*Flycreek and similar soils*—30 percent

*Anatone and similar soils*—30 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Btree—north-facing concave backslopes; Flycreek—north-facing convex backslopes; Anatone—narrow north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Btree and Flycreek—volcanic ash over colluvium and residuum derived from acidic tuff; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,600 to 5,400 feet

*Native plants:* Btree and Flycreek—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Btree***

1 inch to 0—partially decomposed twigs and needles

0 to 7 inches—brown silt loam

7 to 17 inches—dark yellowish brown loam

17 to 22 inches—brown cobbly loam

22 to 31 inches—dark brown very cobbly clay

31 to 42 inches—dark brown very gravelly clay

42 inches—soft tuff

### ***Properties and Qualities of Btree***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Depth to claypan:* 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Flycreek***

3 inches to 0—partially decomposed moss, needles, and twigs

0 to 6 inches—very dark grayish brown silt loam

6 to 17 inches—brown silt loam

17 to 20 inches—dark yellowish brown gravelly clay loam

20 to 31 inches—dark yellowish brown gravelly clay

31 to 35 inches—brown gravelly clay loam

35 inches—weathered acidic basalt

### ***Properties and Qualities of Flycreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 22 inches

*Depth to claypan:* 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam



3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Flyvalley soils on convex backslopes
- Geisercreek soils on footslopes

### ***Major Uses***

Btree and Flycreek—timber production  
 Anatone—livestock grazing

### ***Major Management Limitations***

Btree and Flycreek—depth to claypan, sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness  
 Flycreek—windthrow  
 Anatone—depth to bedrock, water erosion, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft and sticky when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on the Flycreek soil may be blown down when the soil is wet and winds are strong.

## **32—Btree-Flycreek-Anatone complex, 60 to 90 percent north slopes**

### **Composition**

*Btree and similar soils*—30 percent

*Flycreek and similar soils*—30 percent

*Anatone and similar soils*—30 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Landscape position:* Btree—north-facing concave backslopes; Flycreek—north-facing convex backslopes; Anatone—north-facing narrow convex backslopes

*Landform:* Canyons

*Parent material:* Btree and Flycreek—volcanic ash over colluvium and residuum derived from acidic tuff; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,600 to 5,400 feet

*Native plants:* Btree and Flycreek—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### **Typical Profile of Btree**

1 inch to 0—partially decomposed twigs and needles

0 to 7 inches—brown silt loam

7 to 17 inches—dark yellowish brown loam

17 to 22 inches—brown cobbly loam

22 to 31 inches—dark brown very cobbly clay

31 to 42 inches—dark brown very gravelly clay

42 inches—soft tuff

### **Properties and Qualities of Btree**

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Depth to claypan:* 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High in the claypan

### **Typical Profile of Flycreek**

3 inches to 0—partially decomposed moss, needles, and twigs

0 to 6 inches—very dark grayish brown silt loam

6 to 17 inches—brown silt loam

17 to 20 inches—dark yellowish brown gravelly clay loam

20 to 31 inches—dark yellowish brown gravelly clay

31 to 35 inches—brown gravelly clay loam  
 35 inches—weathered acidic basalt

### ***Properties and Qualities of Flycreek***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash mantle:* Extends to depth of 14 to 22 inches  
*Depth to claypan:* 14 to 22 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid in the upper part and slow in the lower part  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Flyvalley soils on convex backslopes
- Geisercreek soils on footslopes

### ***Major Uses***

Btree and Flycreek—timber production  
 Anatone—livestock grazing

### ***Major Management Limitations***

Btree and Flycreek—depth to claypan, sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness  
 Flycreek—windthrow  
 Anatone—depth to bedrock, water erosion, cool winter temperatures, slope stability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

**Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft and sticky when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on the Flycreek soil may be blown down when the soil is wet and winds are strong.

**33—Btree-Klicker-Anatone complex, 60 to 90 percent slopes****Composition**

*Btree and similar soils*—40 percent

*Klicker and similar soils*—30 percent

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—10 percent

**Setting**

*Landscape position:* Btree—north-facing concave backslopes; Klicker—south-facing concave backslopes; Anatone—south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Btree—volcanic ash over colluvium and residuum derived from acidic tuff; Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,750 to 4,600 feet

*Native plants:* Btree—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Klicker—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

**Typical Profile of Btree**

1 inch to 0—partially decomposed twigs and needles

0 to 7 inches—brown silt loam

7 to 17 inches—dark yellowish brown loam

17 to 22 inches—brown cobbly loam

22 to 31 inches—dark brown very cobbly clay

31 to 42 inches—dark brown very gravelly clay

42 inches—soft tuff

### ***Properties and Qualities of Btree***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Depth to claypan:* 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Flycreek soils on north-facing concave backslopes
- Kamela soils on south-facing concave backslopes
- Harlow soils on south-facing convex backslopes

### ***Major Uses***

Btree and Klicker—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Btree and Klicker—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Btree—depth to claypan

Klicker—windthrow, available water capacity

Anatone—depth to bedrock, water erosion, cool winter temperatures, slope stability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Droughtiness may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Midslope roads are difficult to maintain, and they require large cuts and fills that remove land from production.
- Unsurfaced roads on the Btree soil are soft and sticky when wet.
- Unsurfaced roads on the Klicker soil are sticky when wet.
- Unsurfaced roads and skid trails on the Btree soil are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails on the Klicker soil are dusty when dry.
- Because of the depth to bedrock, trees on the Klicker soil may be blown down when the soil is wet and winds are strong.

### ***34—Bucketlake silt loam, 15 to 30 percent north slopes***

#### ***Composition***

*Bucketlake and similar soils—85 percent*

*Contrasting inclusions—15 percent*

#### ***Setting***

*Landscape position:* North-facing ground and lateral moraines

*Landform:* Mountains

*Parent material:* Volcanic ash over glacial till derived dominantly from granitic rock

*Elevation:* 5,400 to 6,000 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—30 to 45 inches



Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 65 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile***

1 inch to 0—partially decomposed moss, grass, and twigs

0 to 4 inches—dark brown silt loam

4 to 14 inches—dark yellowish brown silt loam

14 to 21 inches—dark yellowish brown cobbly coarse sandy loam

21 to 62 inches—dark yellowish brown very cobbly coarse sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Ferguson soils on lower slopes of outwash fans

### ***Major Use***

Timber production

### ***Major Management Limitations***

Sheet and rill erosion, equipment limitations, soil compaction, plant competition, puddling, dustiness

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***35—Bucketlake silt loam, 30 to 60 percent north slopes***

### ***Composition***

*Bucketlake and similar soils—*85 percent

*Contrasting inclusions—*15 percent

### ***Setting***

*Landscape position:* North-facing ground and lateral moraines

*Landform:* Mountains

*Parent material:* Volcanic ash over glacial till dominated by granitic rock

*Elevation:* 5,400 to 6,000 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 65 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile***

1 inch to 0—partially decomposed moss, grass, and twigs

0 to 4 inches—dark brown silt loam

4 to 14 inches—dark yellowish brown silt loam

14 to 21 inches—dark yellowish brown cobbly coarse sandy loam

21 to 62 inches—dark yellowish brown very cobbly coarse sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Ferguson soils on lower slopes of outwash fans

### ***Major Use***

Timber production

### ***Major Management Limitations***

Sheet and rill erosion, equipment limitations, soil compaction, plant competition, soil displacement, puddling, dustiness

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***36—Buford-Anatone complex, 2 to 15 percent slopes***

### ***Composition***

*Buford and similar soils*—45 percent

*Anatone and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Buford—footslopes and gentle concave backslopes in ravines;

Anatone—shoulders and gentle convex backslopes in ravines

*Landform:* Plateaus

*Parent material:* Buford—loess with a minor influence of volcanic ash over residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Buford—ponderosa pine, common snowberry; Anatone—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Buford***

1 inch to 0—pine needles and slightly decomposed plant litter

0 to 3 inches—very dark brown silt loam

3 to 10 inches—very dark grayish brown silt loam

10 to 24 inches—dark brown silt loam

24 to 36 inches—dark yellowish brown silt loam

36 to 46 inches—dark yellowish brown loam

46 to 50 inches—dark brown cobbly clay

50 inches—basalt

### ***Properties and Qualities of Buford***

*Depth to bedrock:* 40 to 60 inches

*Depth to clayey layer:* 39 to 54 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Rock outcrop on shoulders near the Anatone soil
- Bocker soils on shoulders near the Anatone soil
- Albee soils on footslopes near the Buford soil

### ***Major Uses***

Buford—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Buford—soil compaction, seedling mortality, plant competition

Anatone—depth to bedrock, stones on soil surface, available water capacity, water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The depth to bedrock limits construction of water impoundments.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the soil may limit the success of seedlings and the choice of species for seedlings.
- The upper layer is saturated following snowmelt.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Livestock tend to graze in the less stony areas.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***37—Buford-Bocker complex, 2 to 15 percent slopes***

### ***Composition***

*Buford and similar soils*—45 percent

*Bocker and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Buford—mounds in areas of patterned ground on summits;  
Bocker—intermounds in areas of patterned ground on summits (fig. 9)

*Landform:* Plateaus and structural benches

*Parent material:* Buford—loess with a minor influence of volcanic ash over residuum derived from basalt; Bocker—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Buford—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days



Figure 9.—Typical area of Buford-Bocker complex, 2 to 15 percent slopes, near the town of Flora.  
The Buford soil is on mounds, and the Bocker soil is in intermounds.

#### ***Typical Profile of Buford***

1 inch to 0—pine needles and slightly decomposed plant litter  
 0 to 3 inches—very dark brown silt loam  
 3 to 10 inches—very dark grayish brown silt loam  
 10 to 24 inches—dark brown silt loam  
 24 to 36 inches—dark yellowish brown silt loam  
 36 to 46 inches—dark yellowish brown loam  
 46 to 50 inches—dark brown cobbly clay  
 50 inches—basalt

#### ***Properties and Qualities of Buford***

*Depth to bedrock:* 40 to 60 inches  
*Depth to claypan:* 40 to 60 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Slight or moderate

#### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam  
 2 to 7 inches—dark brown very cobbly silt loam  
 7 inches—basalt with coatings of clay in the cracks

#### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Anatone soils on intermounds
- Cowsly soils on mounds

### ***Major Uses***

Buford—timber production  
Bocker—livestock grazing

### ***Major Management Limitations***

Buford and Bocker—uneven ground  
Buford—soil compaction, seedling mortality, plant competition  
Bocker—available water capacity, cobbles on soil surface, depth to bedrock, water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The depth to bedrock limits construction of water impoundments.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the soil may limit the success of seedlings and the choice of species for seedlings.
- The upper layer of the soil is saturated following snowmelt.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***38—Bunchpoint silt loam, 0 to 15 percent slopes***

### ***Composition***

*Bunchpoint and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Summits

*Landform:* Plateaus

*Parent material:* Loess and residuum derived from basalt with an influence of volcanic ash in the upper part

*Elevation:* 4,000 to 5,400 feet

*Native plants:* Ponderosa pine, Idaho fescue, bluebunch wheatgrass



*Climatic factors:*

- Mean annual precipitation—20 to 30 inches
- Mean annual air temperature—41 to 44 degrees F
- Frost-free period—70 to 100 days

***Typical Profile***

- 0.5 inch to 0—discontinuous layer of leaves and needles
- 0 to 12 inches—dark brown silt loam
- 12 to 24 inches—brown silt loam
- 24 to 32 inches—dark yellowish brown gravelly silt loam
- 32 inches—basalt

***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

***Contrasting Inclusions***

- Downeygulch and Albee soils in concave positions of summits
- Thirstygulch soils in convex positions of summits

***Major Use***

Timber production

***Major Management Limitations***

Soil compaction, windthrow, plant competition, puddling, dustiness

***General Management Considerations*****Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

***39—Bunchpoint-Bocker complex, 0 to 15 percent slopes******Composition***

*Bunchpoint and similar soils*—45 percent

*Bocker and similar soils*—40 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position:* Bunchpoint—mounds in areas of patterned ground on summits;  
Bocker—intermounds in areas of patterned ground on summits

*Landform:* Plateaus and structural benches

*Parent material:* Bunchpoint—loess and residuum derived from basalt with an

influence of volcanic ash in the upper part; Bocker—loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,400 feet

*Native plants:* Bunchpoint—ponderosa pine, Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—20 to 30 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Bunchpoint***

0.5 inch to 0—discontinuous layer of leaves and needles

0 to 12 inches—dark brown silt loam

12 to 24 inches—brown silt loam

24 to 32 inches—dark yellowish brown gravelly silt loam

32 inches—basalt

### ***Properties and Qualities of Bunchpoint***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Lowerbluff and Downeygulch soils on mounds
- Anatone soils in intermounds

### ***Major Uses***

Bunchpoint—timber production

Bocker—livestock grazing

### ***Major Management Limitations***

Bunchpoint—soil compaction, windthrow, plant competition, puddling, dustiness

Bocker—depth to bedrock, permeability, water erosion, available water capacity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.

- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **40—Chard very fine sandy loam, 15 to 30 percent slopes**

#### **Composition**

*Chard and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Side slopes

*Landform:* Outwash terraces

*Parent material:* Mixed loess and glaciofluvial deposits

*Elevation:* 800 to 1,200 feet

*Native plants:* Bluebunch wheatgrass, sand dropseed

*Climatic factors:*

Mean annual precipitation—12 to 14 inches

Mean annual air temperature—50 to 52 degrees F

Frost-free period—135 to 150 days

#### **Typical Profile**

0 to 18 inches—very dark grayish brown very fine sandy loam

18 to 30 inches—dark grayish brown silt loam

30 to 50 inches—brown very fine sandy loam

50 to 68 inches—grayish brown very fine sandy loam

#### **Soil Properties and Qualities**

*Depth to bedrock:* More than 60 inches

*Depth to secondary calcium carbonate:* 20 to 44 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

*Corrosivity to uncoated steel:* High

***Contrasting Inclusions***

- Tannahill soils on adjacent higher footslopes
- Chard soils that have loam or clay loam in the lower layers

***Major Use***

Livestock grazing

***Major Management Limitations***

Permeability, water erosion, corrosivity, low annual precipitation

***General Management Considerations******Livestock grazing***

- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of seepage limits construction of water impoundments.
- The low annual precipitation limits forage production.

***41—Cherrycreek-Imnaha complex, 2 to 15 percent slopes******Composition***

*Cherrycreek and similar soils*—50 percent

*Imnaha and similar soils*—35 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position:* Cherrycreek—footslopes and concave positions of summits;

Imnaha—convex positions of summits

*Landform:* Plateaus, structural benches

*Parent material:* Mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,500 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—15 to 25 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

***Typical Profile of Cherrycreek***

0 to 9 inches—black very cobbly silt loam

9 to 28 inches—very dark grayish brown extremely cobbly silt loam

28 to 43 inches—brown extremely cobbly silt loam

43 to 53 inches—reddish brown extremely cobbly silt loam

53 inches—basalt

***Properties and Qualities of Cherrycreek***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam  
 5 to 17 inches—very dark gray gravelly silt loam  
 17 to 21 inches—very dark grayish brown very gravelly silt loam  
 21 to 24 inches—dark brown very gravelly loam  
 24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Anatone soils on shoulders
- Rock outcrop on shoulders
- Getaway soils on footslopes

### ***Major Use***

Cherrycreek and Imnaha—livestock grazing

### ***Major Management Limitations***

Cherrycreek and Imnaha—cool winter temperatures, water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## ***42—Cherrycreek-Imnaha complex, 15 to 30 percent north slopes***

### ***Composition***

*Cherrycreek and similar soils*—50 percent  
*Imnaha and similar soils*—20 percent  
*Imnaha, moist, and similar inclusions*—15 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Cherrycreek—north-facing footslopes and concave backslopes; Imnaha—north-facing shoulders and convex backslopes; Imnaha, moist—north-facing middle backslopes and V-shaped drainageways  
*Landform:* Plateaus, structural benches  
*Parent material:* Mixed volcanic ash and loess over colluvium and residuum derived from basalt  
*Elevation:* 2,800 to 5,500 feet  
*Native plants:* Cherrycreek and Imnaha, moist—mallow ninebark, common

snowberry, rose, Idaho fescue, Saskatoon serviceberry; Imnaha—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—15 to 25 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

***Typical Profile of Cherrycreek***

0 to 9 inches—black very cobbly silt loam

9 to 28 inches—very dark grayish brown extremely cobbly silt loam

28 to 43 inches—brown extremely cobbly silt loam

43 to 53 inches—reddish brown extremely cobbly silt loam

53 inches—basalt

***Properties and Qualities of Cherrycreek***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

***Typical Profile of Imnaha and Imnaha, Moist***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

***Properties and Qualities of Imnaha and Imnaha, Moist***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Anatone soils on shoulders and convex backslopes
- Rock outcrop on shoulders and convex backslopes
- Getaway soils on footslopes and concave backslopes

***Major Use***

Cherrycreek, Imnaha, and Imnaha, moist—livestock grazing

***Major Management Limitations***

Cherrycreek, Imnaha, and Imnaha, moist—cool winter temperatures, water erosion

***General Management Considerations***

***Livestock grazing***

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils

- are firm and the preferred forage plants can withstand the grazing pressure.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.

### **43—Cherrycreek-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes**

#### **Composition**

*Cherrycreek and similar soils*—40 percent

*Imnaha and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Cherrycreek—north-facing concave backslopes; Imnaha—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,500 feet

*Native plants:* Cherrycreek—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry; Imnaha—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—15 to 25 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile of Cherrycreek**

0 to 9 inches—black very cobbly silt loam

9 to 28 inches—very dark grayish brown extremely cobbly silt loam

28 to 43 inches—brown extremely cobbly silt loam

43 to 53 inches—reddish brown extremely cobbly silt loam

53 inches—basalt

#### **Properties and Qualities of Cherrycreek**

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Very severe

#### **Typical Profile of Imnaha**

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

#### **Properties and Qualities of Imnaha**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches



*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Anatone and Bocker soils on convex backslopes
- Getaway soils on concave backslopes

### ***Major Use***

Cherrycreek and Imnaha—livestock grazing

### ***Major Management Limitations***

Cherrycreek, Imnaha, and Rock outcrop—slope

Cherrycreek and Imnaha—water erosion, cool winter temperatures

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

## ***44—Cherrycreek-Limberjim-Rock outcrop complex, 30 to 60 percent north slopes***

### ***Composition***

*Cherrycreek and similar soils*—40 percent

*Limberjim and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Cherrycreek—north-facing backslopes and drainageways; Limberjim—north-facing upper concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Cherrycreek—mixed volcanic ash and loess over colluvium and residuum derived from basalt; Limberjim—volcanic ash over colluvium and residuum derived from basalt or andesitic tuff breccia

*Elevation:* 4,000 to 5,400 feet

*Native plants:* Cherrycreek—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry; Limberjim—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 25 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Cherrycreek***

0 to 9 inches—black very cobbly silt loam  
 9 to 28 inches—very dark grayish brown extremely cobbly silt loam  
 28 to 43 inches—brown extremely cobbly silt loam  
 43 to 53 inches—reddish brown extremely cobbly silt loam  
 53 inches—basalt

### ***Properties and Qualities of Cherrycreek***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Limberjim***

1 inch to 0—partially decomposed twigs and small branches  
 0 to 15 inches—dark yellowish brown silt loam  
 15 to 20 inches—dark yellowish brown gravelly silt loam  
 20 to 41 inches—dark yellowish brown very cobbly clay loam  
 41 inches—basalt

### ***Properties and Qualities of Limberjim***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 28 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Imnaha soils on middle backslopes
- Syrupcreek soils on convex backslopes

### ***Major Uses***

Cherrycreek—livestock grazing  
 Limberjim—timber production

### ***Major Management Limitations***

Cherrycreek, Limberjim, and Rock outcrop—slope  
 Cherrycreek and Limberjim—water erosion  
 Cherrycreek—available water capacity, cool winter temperatures  
 Limberjim—cut and fill erosion, equipment operability, soil compaction, soil displacement, plant competition

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

**Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are sticky when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.

**45—Chesnimnus silt loam, 0 to 3 percent slopes****Composition**

*Chesnimnus* and similar soils—85 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position:* Low terraces

*Landform:* Outwash plains

*Parent material:* Glacial outwash with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,600 to 4,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

0 to 7 inches—very dark brown silt loam

7 to 13 inches—dark brown clay loam

13 to 26 inches—brown clay loam

26 to 34 inches—brown clay loam

34 to 48 inches—pale brown loam

48 to 60 inches—pale brown very gravelly sandy loam

**Soil Properties and Qualities**

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly layer:* 35 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 9 inches

*Hazard of erosion:* Slight

*Corrosivity to uncoated steel:* High

**Contrasting Inclusions**

- Silverlake soils on slightly higher outwash terraces

- Reavis soils on slightly lower outwash plains
- Endoaquolls in drainageways

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Permeability, depth to very gravelly layer, corrosivity, shrink-swell potential, frost heaving, seepage

### ***General Management Considerations***

#### **Irrigated cropland and hay and pasture**

- A tillage pan forms easily if the soil is excessively cultivated.
- The risk of seepage limits construction of water impoundments.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Because of the moderately slow permeability, special design of absorption lines may be needed.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Frost action limits construction of access roads, driveways, and buildings.
- Unsurfaced roads are dusty when dry.

## ***46—Chesnimnus gravelly loam, 0 to 3 percent slopes***

### ***Composition***

*Chesnimnus* and similar soils—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Slightly convex areas

*Landform:* Outwash plains

*Parent material:* Glacial outwash with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,600 to 4,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 7 inches—very dark brown gravelly loam

7 to 13 inches—dark brown clay loam

13 to 26 inches—brown clay loam

26 to 34 inches—brown clay loam

34 to 48 inches—pale brown loam

48 to 60 inches—pale brown very gravelly sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to very gravelly layer:* 30 to 50 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 9 inches  
*Hazard of erosion:* Slight  
*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Reavis soils on slightly lower outwash plains
- Redmount soils in slightly concave areas
- Soils that have brittle layers at a depth of 20 to 40 inches
- Soils that have extremely cobbly layers at a depth of 20 to 40 inches
- Rondowa soils on moraines at the upper margins of the map unit

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Permeability, gravel on soil surface, corrosivity, depth to very gravelly layer, shrink-swell potential, frost heaving, seepage

### ***General Management Considerations***

#### **Irrigated cropland and hay and pasture**

- A tillage pan forms easily if the soil is excessively cultivated.
- The risk of seepage limits construction of water impoundments.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- Low annual precipitation restricts annual cropping unless supplemental irrigation is used.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the restricted permeability of the soil
- Because of the moderately slow permeability, special design of absorption lines may be needed.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Frost action limits construction of access roads, driveways, and buildings.
- Unsurfaced roads are dusty when dry.

## ***47—Cheval silt loam, 0 to 2 percent slopes***

### ***Composition***

*Cheval and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Depressions  
*Landform:* Flood plains  
*Parent material:* Mixed alluvium

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Tufted hairgrass, sedge, rush, bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 6 inches—very dark brown silt loam

6 to 15 inches—very dark gray silt loam

15 to 24 inches—very dark gray loam

24 to 31 inches—dark gray, mottled gravelly loam

31 to 60 inches—grayish brown very gravelly loamy sand

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly sandy layer:* 20 to 36 inches

*Drainage class:* Somewhat poorly drained

*Depth to water table (apparent):* 1.5 to 2.5 feet in January through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 6 inches

*Frequency of flooding:* Occasional in January through June

*Hazard of erosion:* Slight

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Josset soils on gentle rises
- Sturgill soils in depressions

### ***Major Uses***

Livestock grazing, hay and pasture

### ***Major Management Limitations***

High water table, permeability, depth to very gravelly sandy layer, flooding, corrosivity, seepage

### ***General Management Considerations***

#### **Livestock grazing**

- Periods of inundation may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- Wetness during the growing season may damage new seedlings and limit the choice of species for range seedings.
- Heavy season-long grazing in riparian areas may decrease the abundance of plants that help to stabilize streambanks and moderate water temperatures.
- The risk of seepage limits construction of water impoundments.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- A seasonal high water table increases the amount of moisture in the soil.
- The amount of available water is higher because of surface and subsurface flows from adjacent uplands.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

**Hay and pasture**

- The high water table restricts the use of deep-rooted crops.
- The very rapid permeability increases the risk of deep percolation of irrigation water below the root zone.
- The contrasting sandy layer restricts the growth of deep-rooted crops.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The risk of seepage limits construction of water impoundments.

**48—Cloverland silt loam, 2 to 8 percent slopes*****Composition***

*Cloverland and similar soils*—90 percent

*Contrasting inclusions*—10 percent

***Setting***

*Landscape position*: Central portion of summits

*Landform*: Plateaus, structural benches

*Parent material*: Loess over clayey colluvium and residuum derived from basalt

*Elevation*: 3,400 to 4,000 feet

*Native plants*: Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

***Typical Profile***

1 inch to 0—partially decomposed pine needles and twigs

0 to 9 inches—very dark brown silt loam

9 to 19 inches—dark brown silt loam

19 to 26 inches—dark brown, mottled silt loam

26 to 33 inches—grayish brown silt loam

33 to 45 inches—dark yellowish brown silty clay

45 to 60 inches—dark yellowish brown silty clay loam

***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to clayey layers*: 25 to 40 inches

*Drainage class*: Moderately well drained

*Depth to water table (perched)*: 1.5 to 3.0 feet in February through May

*Permeability*: Moderate in the upper part and slow in the lower part

*Available water capacity*: About 11 inches

*Shrink-swell potential*: Moderate

*Hazard of erosion*: Slight

*Potential frost action*: Moderate

***Contrasting Inclusions***

- Sweiting soils on slightly convex rises
- Tolo soils on adjacent north-facing backslopes

***Major Uses***

Timber production, nonirrigated cropland, homesites



### ***Major Management Limitations***

High water table, depth to clayey layers, soil compaction, frost heaving, permeability, shrink-swell potential, plant competition, seedling mortality, dustiness

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The seasonal high water table provides supplemental moisture for plants.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- The quality of roadbeds and road surfaces can be adversely affected by frost action and shrinking and swelling.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.

## ***49—Cloverland silt loam, 8 to 15 percent slopes***

### ***Composition***

*Cloverland and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position*: Shoulders

*Landform*: Plateaus, structural benches

*Parent material*: Loess over clayey colluvium and residuum derived from basalt

*Elevation*: 3,400 to 4,000 feet

*Native plants*: Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—partially decomposed pine needles and twigs

0 to 9 inches—very dark brown silt loam

9 to 19 inches—dark brown silt loam

19 to 26 inches—dark brown, mottled silt loam

26 to 33 inches—grayish brown silt loam

33 to 45 inches—dark yellowish brown silty clay

45 to 60 inches—dark yellowish brown silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to clayey layers*: 25 to 40 inches

*Drainage class*: Moderately well drained

*Depth to water table (perched):* 1.5 to 3.0 feet in February through May

*Permeability:* Moderate in the upper part and slow in the lower part

*Available water capacity:* About 11 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* Moderate

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Sweiting soils on slightly convex rises
- Tolo soils on adjacent north- and east-facing slopes

### ***Major Uses***

Timber production, nonirrigated cropland, homesites

### ***Major Management Limitations***

High water table, depth to clayey layers, water erosion, soil compaction, permeability, frost heaving, shrink-swell potential, seedling mortality, plant competition, dustiness

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The seasonal high water table provides supplemental moisture for plants.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the limited permeability, which restricts the movement and filtration of effluent.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Frost action limits construction of access roads, driveways, and buildings.
- Excavation increases the risk of water erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- Disturbed areas are subject to soil erosion.
- The steepness of slope may make special design of absorption lines necessary.
- Unsurfaced roads are dusty when dry.

## ***50—Conley silty clay loam, 0 to 2 percent slopes***

### ***Composition***

*Conley and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Slightly concave areas

*Landform:* Alluvial fans, lake basins

*Parent material:* Mixed alluvial and lacustrine material

*Elevation:* 2,800 to 3,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 14 inches—black silty clay loam

14 to 18 inches—very dark gray silt loam

18 to 23 inches—very dark grayish brown silt loam

23 to 40 inches—very dark grayish brown silty clay

40 to 60 inches—dark grayish brown gravelly silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 15 to 30 inches

*Drainage class:* Somewhat poorly drained

*Depth to water table (perched):* 1.5 to 2.5 feet in December through April

*Permeability:* Very slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* High in the claypan

### ***Contrasting Inclusions***

- Ramo soils on adjacent fans at higher elevations
- Gelsinger soils on adjacent fans at higher elevations
- Langrell soils at the base of fans
- Endoaquolls in depressions at the base of slopes

### ***Major Use***

Hay and pasture

### ***Major Management Limitations***

High water table, shrink-swell potential, permeability, depth to claypan

### ***General Management Considerations***

#### ***Hay and pasture***

- The high water table restricts the use of deep-rooted crops.
- The claypan restricts the rooting depth.
- The claypan expands when wet and contracts when dry, which can damage plant roots.
- A tillage pan forms easily if the soil is excessively cultivated.
- Crusting of the soil surface reduces infiltration, causes ponding, and restricts seedling emergence.
- Wetness limits the choice of adapted plants and increases the risk of winterkill due to frost action.
- Grazing when the soil is wet results in compaction of the upper layer and poor tilth.

## **51—Conley silty clay loam, 2 to 8 percent slopes**

### **Composition**

*Conley and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### **Setting**

*Landscape position*: Concave areas

*Landform*: Alluvial fans, lake basins

*Parent material*: Mixed alluvial and lacustrine material

*Elevation*: 2,800 to 3,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### **Typical Profile**

0 to 14 inches—black silty clay loam

14 to 18 inches—very dark gray silt loam

18 to 23 inches—very dark grayish brown silt loam

23 to 40 inches—very dark grayish brown silty clay

40 to 60 inches—dark grayish brown gravelly silty clay loam

### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Depth to claypan*: 15 to 30 inches

*Drainage class*: Somewhat poorly drained

*Depth to water table (perched)*: 1.5 to 2.5 feet in December through April

*Permeability*: Very slow

*Available water capacity*: About 10 inches

*Hazard of erosion*: Slight or moderate

*Shrink-swell potential*: High in the claypan

### **Contrasting Inclusions**

- Ramo soils on adjacent fans at higher elevations
- Gelsinger soils on adjacent fans at higher elevations
- Langrell soils at the base of fans
- Endoaquolls in depressions at the base of slopes

### **Major Use**

Hay and pasture

### **Major Management Limitations**

High water table, permeability, shrink-swell potential, depth to claypan

### **General Management Considerations**

#### **Hay and pasture**

- The high water table restricts the use of deep-rooted crops.
- The claypan restricts the rooting depth.
- The claypan expands when wet and contracts when dry, which can damage plant roots.

- A tillage pan forms easily if the soil is excessively cultivated.
- Crusting of the soil surface reduces infiltration, causes ponding, and restricts seedling emergence.
- Wetness limits the choice of adapted plants and increases the risk of winterkill due to frost action.
- Grazing when the soil is wet results in compaction of the upper layer and poor tilth.

## ***52—Copperfield-Thiessen complex, 30 to 60 percent north slopes***

### ***Composition***

*Copperfield and similar soils—50 percent*

*Thiessen and similar soils—35 percent*

*Contrasting inclusions—15 percent*

### ***Setting***

*Landscape position:* Copperfield—north-facing concave backslopes; Thiessen—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,600 to 2,800 feet

*Native plants:* Copperfield—Idaho fescue, bluebunch wheatgrass, mockorange, elderberry, rose; Thiessen—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 145 days

### ***Typical Profile of Copperfield***

0 to 4 inches—black very cobbly silt loam

4 to 22 inches—very dark brown very cobbly silt loam

22 to 42 inches—very dark grayish brown very gravelly silty clay loam

42 to 60 inches—dark brown extremely cobbly silty clay loam

### ***Properties and Qualities of Copperfield***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Thiessen***

0 to 3 inches—very dark brown very cobbly silt loam

3 to 6 inches—dark brown very gravelly clay loam

6 to 14 inches—very dark brown very gravelly clay loam

14 to 23 inches—very dark brown very cobbly clay

23 to 34 inches—dark brown very cobbly clay

34 inches—basalt

### ***Properties and Qualities of Thiessen***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Laufer soils on convex backslopes
- Rock outcrop that consists of horizontal layers of exposed bedrock on backslopes
- Rockly soils on convex backslopes

### ***Major Use***

Copperfield and Thiessen—livestock grazing

### ***Major Management Limitations***

Copperfield and Thiessen—slope, water erosion, permeability, cobbles on soil surface

Thiessen—available water capacity, depth to clayey layers

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The clayey lower layers in the Thiessen soil restrict the rooting depth.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.

## ***53—Copperfield-Thiessen-Rock outcrop complex, 60 to 90 percent north slopes***

### ***Composition***

*Copperfield and similar soils*—40 percent

*Thiessen and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Copperfield—north-facing concave backslopes; Thiessen—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,600 to 2,800 feet

*Native plants:* Copperfield—Idaho fescue, bluebunch wheatgrass, mockorange, elderberry, rose; Thiessen—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 145 days

### ***Typical Profile of Copperfield***

0 to 4 inches—black very cobbly silt loam

4 to 22 inches—very dark brown very cobbly silt loam

22 to 42 inches—very dark grayish brown very gravelly silty clay loam

42 to 60 inches—dark brown extremely cobbly silty clay loam

### ***Properties and Qualities of Copperfield***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Thiessen***

0 to 3 inches—very dark brown very cobbly silt loam

3 to 6 inches—dark brown very gravelly clay loam

6 to 14 inches—very dark brown very gravelly clay loam

14 to 23 inches—very dark brown very cobbly clay

23 to 34 inches—very dark brown very cobbly clay

34 inches—basalt

### ***Properties and Qualities of Thiessen***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Laufer soils on convex backslopes
- Rockly soils on convex backslopes

### ***Major Use***

Copperfield and Thiessen—livestock grazing

### ***Major Management Limitations***

Copperfield, Thiessen, and Rock outcrop—slope

Copperfield and Thiessen—water erosion, permeability, cobbles on soil surface

Thiessen—available water capacity, depth to clayey layers

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The clayey lower layers in the Thiessen soil restrict the rooting depth.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.

## ***54—Cowsly silt loam, 2 to 8 percent slopes***

### ***Composition***

*Cowsly and similar soils*—90 percent

*Contrasting inclusions*—10 percent



### ***Setting***

*Landscape position:* Central portion of summits

*Landform:* Plateaus, structural benches

*Parent material:* Loess with an influence of volcanic ash over fine-textured colluvium and residuum derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 3 inches—very dark grayish brown silt loam

3 to 20 inches—very dark brown silt loam

20 to 23 inches—grayish brown silt loam

23 to 41 inches—dark brown clay

41 to 50 inches—dark yellowish brown clay

50 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches

*Depth to claypan:* 17 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 2.5 feet in March through May

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 8 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High in the claypan

*Potential frost action:* Moderate

*Corrosivity to uncoated steel:* Moderate

### ***Contrasting Inclusions***

- Sweitberg soils on gentle rises
- Wilkins soils in depressions
- Bocker soils in gullies

### ***Major Uses***

Nonirrigated cropland, timber production (fig. 10), homesites

### ***Major Management Limitations***

High water table, depth to claypan, soil compaction, permeability, shrink-swell potential, water erosion, frost heaving, seedling mortality, plant competition, windthrow, dustiness

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The soil expands when wet and contracts when dry, which can damage plant roots.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.



**Figure 10.—Typical area of Cowsly silt loam, 2 to 8 percent slopes, used for timber production.**

- The seasonal high water table provides supplemental moisture for plants.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to the claypan, trees may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads and skid trails are soft and sticky when wet because of the clay in the lower layers.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Frost action limits construction of access roads, driveways, and buildings.

**55—Cowsly silt loam, 8 to 15 percent slopes****Composition**

*Cowsly and similar soils*—90 percent

*Contrasting inclusions*—10 percent

**Setting**

*Landscape position*: Small slump blocks and shoulders

*Landform*: Plateaus, structural benches

*Parent material*: Loess with an influence of volcanic ash over fine-textured colluvium and residuum derived from basalt

*Elevation*: 3,400 to 4,500 feet

*Native plants*: Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

0 to 3 inches—very dark grayish brown silt loam

3 to 20 inches—very dark brown silt loam

20 to 23 inches—grayish brown silt loam

23 to 41 inches—dark brown clay

41 to 50 inches—dark yellowish brown clay

50 inches—basalt

**Soil Properties and Qualities**

*Depth to bedrock*: 40 to 60 inches

*Depth to claypan*: 17 to 30 inches

*Drainage class*: Moderately well drained

*Depth to water table (perched)*: 1.5 to 2.5 feet in March through May

*Permeability*: Moderate in the upper part and very slow in the lower part

*Available water capacity*: About 9 inches

*Hazard of erosion*: Moderate

*Shrink-swell potential*: High in the claypan

*Potential frost action*: Moderate

*Corrosivity to uncoated steel*: Moderate

**Contrasting Inclusions**

- Sweitberg soils on gentle rises
- Wilkins soils in depressions
- Bocker soils in gullies

**Major Uses**

Nonirrigated cropland, timber production, homesites

**Major Management Limitations**

High water table, depth to claypan, water erosion, permeability, shrink-swell potential, soil compaction, frost heaving, seedling mortality, windthrow, plant competition, dustiness

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The soil expands when wet and contracts when dry, which can damage plant roots.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- The seasonal high water table provides supplemental moisture for plants.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to the claypan, trees may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads and skid trails are soft and sticky when wet because of the clay in the lower layers.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines necessary.
- Disturbed areas are subject to soil erosion.
- Frost action limits construction of access roads, driveways, and buildings.

## ***56—Cowsly stony silt loam, 2 to 15 percent slopes***

### ***Composition***

*Cowsly and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Summits adjacent to ravines

*Landform:* Plateaus, structural benches

*Parent material:* Loess with an influence of volcanic ash over fine-textured colluvium and residuum derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 3 inches—very dark grayish brown stony silt loam

3 to 20 inches—very dark brown silt loam

20 to 23 inches—grayish brown silt loam  
23 to 41 inches—dark brown clay  
41 to 50 inches—dark yellowish brown clay  
50 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches  
*Depth to claypan:* 17 to 30 inches  
*Drainage class:* Moderately well drained  
*Depth to water table (perched):* 1.5 to 2.5 feet in March through May  
*Permeability:* Moderate in the upper part and very slow in the lower part  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High in the claypan  
*Corrosivity to uncoated steel:* Moderate  
*Potential for frost action:* Moderate

### ***Contrasting Inclusions***

- Sweitberg soils on gentle rises
- Wilkins soils in depressions
- Bocker soils in gullies
- Cloverland soils on summits scattered throughout

### ***Major Uses***

Timber production, homesites

### ***Major Management Limitations***

High water table, depth to claypan, stones on soil surface, permeability, shrink-swell potential, soil compaction, water erosion, seedling mortality, plant competition, windthrow, dustiness

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to the claypan, trees may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Stones on the surface make the construction of roads difficult.
- Frost action limits construction of access roads, driveways, and buildings.
- Excavation is hampered by the stones in the soil.

- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines necessary.
- Disturbed areas are subject to soil erosion.

## **57—Cowsly complex, 2 to 30 percent north slopes**

### ***Composition***

*Cowsly, cobbly, and similar soils*—60 percent

*Cowsly silt loam and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Cowsly, cobbly—north-facing backslopes of fault blocks; Cowsly silt loam—gently sloping benches between steeper fault blocks

*Landform:* Plateaus

*Parent material:* Loess with a minor influence of volcanic ash over fine-textured colluvium and residuum derived from basalt

*Elevation:* 2,800 to 4,500 feet

*Native plants:* Cowsly, cobbly—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Cowsly silt loam—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

*Slope:* Cowsly, cobbly—15 to 30 percent; Cowsly silt loam—2 to 15 percent

### ***Typical Profile of Cowsly, Cobbly***

0 to 3 inches—very dark grayish brown cobbly silt loam

3 to 20 inches—very dark brown silt loam

20 to 23 inches—grayish brown silt loam

23 to 41 inches—dark brown clay

41 to 50 inches—dark yellowish brown clay

50 inches—basalt

### ***Properties and Qualities of Cowsly, Cobbly***

*Depth to bedrock:* 40 to 60 inches

*Depth to claypan:* 17 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 2.5 feet in March through May

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Cowsly Silt Loam***

0 to 3 inches—very dark grayish brown silt loam

3 to 20 inches—very dark brown silt loam

20 to 23 inches—grayish brown silt loam

23 to 41 inches—dark brown clay

41 to 50 inches—dark yellowish brown clay

50 inches—basalt



### ***Properties and Qualities of Cowsly Silt Loam***

*Depth to bedrock:* 40 to 60 inches

*Depth to claypan:* 17 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 2.5 feet in March through May

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High in the claypan

### ***Contrasting Inclusions***

- Wilkins soils in drainageways
- Linecreek soils on escarpments
- Rock outcrop on short headwalls near the upper margins of the map unit

### ***Major Use***

Cowsly, cobbly, and Cowsly silt loam—timber production

### ***Major Management Limitations***

Cowsly, cobbly, and Cowsly silt loam—high water table, soil compaction, seedling mortality, windthrow, plant competition, puddling, dustiness, depth to claypan, shrink-swell potential

Cowsly, cobbly—sheet and rill erosion, water erosion, slope

Cowsly silt loam—snowmelt, additional water

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Because of the depth to the claypan, trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Special precautions may be needed to control soil loss following activities that expose the Cowsly, cobbly, soil.

## ***58—Cowsly complex, 2 to 30 percent south slopes***

### ***Composition***

*Cowsly, cobbly, and similar soils*—60 percent

*Cowsly silt loam and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Cowsly, cobbly—south-facing backslopes of fault blocks; Cowsly silt loam—gently sloping structural benches between steeper fault blocks

*Landform:* Plateaus

*Slope:* Cowsly, cobbly—15 to 30 percent; Cowsly silt loam—2 to 15 percent

*Parent material:* Loess with minor amounts of volcanic ash over fine-textured colluvium and residuum derived from basalt



*Elevation:* 4,000 to 4,500 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Cowsly, Cobbly***

0 to 3 inches—very dark grayish brown cobbly silt loam

3 to 20 inches—very dark brown silt loam

20 to 23 inches—grayish brown silt loam

23 to 41 inches—dark brown clay

41 to 50 inches—dark yellowish brown clay

50 inches—basalt

### ***Properties and Qualities of Cowsly, Cobbly***

*Depth to bedrock:* 40 to 60 inches

*Depth to claypan:* 17 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table:* 2.5 to 3.5 feet in March through May

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Cowsly Silt Loam***

0 to 3 inches—very dark grayish brown silt loam

3 to 20 inches—very dark brown silt loam

20 to 23 inches—grayish brown silt loam

23 to 41 inches—dark brown clay

41 to 50 inches—dark yellowish brown clay

50 inches—basalt

### ***Properties and Qualities of Cowsly Silt Loam***

*Depth to bedrock:* 40 to 60 inches

*Depth to claypan:* 17 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table:* 2.5 to 3.5 feet in March through May

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High in the claypan

### ***Contrasting Inclusions***

- Wilkins soils in drainageways
- Linecreek soils on escarpments
- Rock outcrop on short headwalls near the upper margins of the map unit

### ***Major Use***

Cowsly, cobbly, and Cowsly silt loam—timber production

### ***Major Management Limitations***

Cowsly, cobbly, and Cowsly silt loam—high water table, soil compaction, seedling

mortality, windthrow, plant competition, puddling, dustiness, depth to claypan, shrink-swell potential  
 Cowsly, cobbly—sheet and rill erosion, water erosion  
 Cowsly silt loam—snowmelt, additional water

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Because of the depth to the claypan, trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Special precautions may be needed to control soil loss following activities that expose the Cowsly, cobbly, soil.

## ***59—Cowsly-Howmeadows-Sherod complex, 0 to 15 percent slopes***

### ***Composition***

*Cowsly and similar soils*—60 percent  
*Howmeadows and similar soils*—15 percent  
*Sherod and similar soils*—15 percent  
*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Cowsly—gentle rises of summits; Howmeadows and Sherod—narrow drainageways of summits (fig. 11)

*Landform:* Plateaus, structural benches

*Parent material:* Cowsly—loess with an influence of volcanic ash over fine-textured colluvium and residuum derived from basalt; Howmeadows—mixed loess and minor amounts of volcanic ash over clayey colluvium and residuum derived from basalt; Sherod—mixed loess and minor amounts of volcanic ash over clayey residuum derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Cowsly—grand fir, Douglas fir, Engelmann spruce, blue huckleberry, prince's pine, elk sedge, pinegrass, heartleaf arnica, western rattlesnake plantain; Howmeadows—tufted hairgrass, sedge, rush, spikerush; Sherod—California danthonia, rush, sedge, bluegrass, timber danthonia, spikerush

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

*Slope:* Cowsly—2 to 15 percent; Howmeadows and Sherod—0 to 3 percent

### ***Typical Profile of Cowsly***

0 to 3 inches—very dark grayish brown silt loam  
 3 to 20 inches—very dark brown silt loam  
 20 to 23 inches—grayish brown silt loam  
 23 to 41 inches—dark brown clay



Figure 11.—Typical area of Cowsly-Howmeadows-Sherod complex, 0 to 15 percent slopes, on summits in the Promise area. The Cowsly soil is on convex rises, and the Howmeadows and Sherod soils are in drainageways.

41 to 50 inches—dark yellowish brown clay  
50 inches—basalt

#### ***Properties and Qualities of Cowsly***

*Depth to bedrock:* 40 to 60 inches  
*Depth to claypan:* 17 to 30 inches  
*Drainage class:* Moderately well drained  
*Depth to water table (perched):* 1.5 to 2.5 feet in March through May  
*Permeability:* Moderate in the upper part and very slow in the lower part  
*Available water capacity:* About 9 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High in the claypan

#### ***Typical Profile of Howmeadows***

0 to 7 inches—very dark gray silty clay loam  
7 to 10 inches—dark grayish brown silty clay loam  
10 to 21 inches—grayish brown, mottled silty clay  
21 to 26 inches—light olive brown gravelly clay  
26 inches—basalt

#### ***Properties and Qualities of Howmeadows***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 6 to 12 inches  
*Drainage class:* Poorly drained  
*Depth to water table (perched):* 0.5 to 1.0 foot in March through June

*Permeability:* Very slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* High

*Potential for frost action:* High

### ***Typical Profile of Sherod***

0 to 5 inches—very dark grayish brown, mottled silt loam

5 to 8 inches—dark grayish brown silty clay loam

8 to 17 inches—brown very cobbly silty clay loam

17 to 19 inches—brownish yellow very cobbly clay

19 inches—basalt

### ***Properties and Qualities of Sherod***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 10 to 18 inches

*Drainage class:* Somewhat poorly drained

*Depth to water table (perched):* 1.0 to 1.5 feet in March through June

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* High

*Potential for frost action:* High

### ***Contrasting Inclusions***

- Anatone soils in convex areas of gentle rises
- Bocker soils on shoulders adjacent to canyon backslopes

### ***Major Uses***

Cowsly—timber production

Howmeadows and Sherod—livestock grazing

### ***Major Management Limitations***

Cowsly, Howmeadows, and Sherod—high water table

Cowsly—permeability, shrink-swell potential, depth to claypan, soil compaction, seedling mortality, plant competition, windthrow, dustiness

Howmeadows and Sherod—available water capacity, potential for frost action, depth to clayey layers

Howmeadows—permeability, shrink-swell potential

Sherod—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- Seasonal wetness on the Howmeadows soil may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- The clayey lower layers restrict the rooting depth.
- The clayey lower layers expand when wet and contract when dry, which can damage plant roots.
- Because of the high potential for frost action, there is a risk of winterkill and seedling damage.
- Droughtiness of the soils may limit the success of seedings and the choice of species for range seedings.
- The amount of available water on these soils is higher because of the surface and subsurface flows from adjacent uplands.
- A cool growing season may limit the growth and establishment of new seedlings

and the choice of species for range seedings.

- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock restricts the rooting depth of the Sherod soil.
- The shallow depth of the Sherod soil limits conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Sherod soil limits construction of water impoundments.
- Road construction can block surface and subsurface flows.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to the claypan, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***60—Demasters-Snell complex, 30 to 70 percent north slopes***

#### ***Composition***

*Demasters and similar soils*—50 percent

*Snell and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Demasters—north-facing concave backslopes; Snell—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,000 to 4,500 feet

*Native plants:* Mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Demasters***

0 to 16 inches—black silt loam

16 to 24 inches—very dark brown silt loam

24 to 33 inches—very dark grayish brown cobbly loam

33 to 44 inches—dark brown very cobbly loam

44 inches—basalt

#### ***Properties and Qualities of Demasters***

*Depth to bedrock:* 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Snell***

0 to 4 inches—black stony loam  
4 to 9 inches—very dark brown stony clay loam  
9 to 18 inches—dark brown very stony clay loam  
18 to 24 inches—dark brown extremely stony clay loam  
24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Harlow soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Bridgewater soils on adjacent alluvial fans and flood plains at the base of canyon backslopes

### ***Major Use***

Demasters and Snell—livestock grazing

### ***Major Management Limitations***

Demasters and Snell—water erosion, slope, cool winter temperatures  
Snell—shrink-swell potential, depth to clayey layers

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- The clayey lower layers in the Snell soil restrict the rooting depth.
- The clayey lower layers in the Snell soil expand when wet and contract when dry, which can damage plant roots.

## ***61—Dixiejett-Lickskillet-Rockly complex, 30 to 60 percent south slopes***

### ***Composition***

*Dixiejett and similar soils*—35 percent  
*Lickskillet and similar soils*—30 percent  
*Rockly and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Dixiejett—south-facing concave backslopes; Lickskillet—



south-facing convex middle backslopes; Rockly—south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Dixiejett—colluvium and residuum derived from basalt; Licksillet—colluvium over residuum derived from basalt; Rockly—loess and colluvium derived from basalt

*Elevation:* 2,800 to 4,000 feet

*Native plants:* Licksillet and Rockly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Dixiejett—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 20 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Dixiejett***

0 to 6 inches—very dark grayish brown gravelly loam

6 to 10 inches—very dark grayish brown very gravelly loam

10 to 18 inches—dark brown very gravelly loam

18 to 27 inches—brown very gravelly clay loam

27 to 43 inches—dark yellowish brown extremely gravelly loam

43 inches—basalt

### ***Properties and Qualities of Dixiejett***

*Depth to bedrock:* 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Licksillet***

0 to 7 inches—very dark grayish brown very cobbly loam

7 to 19 inches—brown extremely cobbly loam

19 inches—Imnaha basalt

### ***Properties and Qualities of Licksillet***

*Depth to bedrock:* 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam

3 to 7 inches—dark brown extremely cobbly loam

7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe



### ***Contrasting Inclusions***

- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Tannahill soils on lower backslopes
- Schuelke soils on middle backslopes

### ***Major Use***

Dixiejett, Lickskillet, and Rockly—livestock grazing

### ***Major Management Limitations***

Dixiejett, Lickskillet, and Rockly—water erosion, slope

Lickskillet and Rockly—depth to bedrock, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Lickskillet and Rockly soils restricts the rooting depth.
- The shallow depth of the Lickskillet and Rockly soils limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Lickskillet and Rockly soils causes a change in the range site and a loss in the potential for forage production.

## ***62—Doublecreek-Flybow-Rock outcrop complex, 30 to 60 percent slopes***

### ***Composition***

*Doublecreek and similar soils*—40 percent

*Flybow and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Doublecreek—north-facing backslopes; Flybow—south-facing backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north- and south-facing backslopes

*Landform:* Canyons

*Parent material:* Doublecreek—mixed loess and colluvium derived from basalt with a minor influence of volcanic ash; Flybow—colluvium derived from basalt

*Elevation:* 2,000 to 2,800 feet

*Native plants:* Doublecreek—Idaho fescue, bluebunch wheatgrass; Flybow—bluebunch wheatgrass, sand dropseed, buckwheat

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Doublecreek***

0 to 4 inches—black silt loam

4 to 10 inches—very dark brown silt loam

10 to 16 inches—very dark grayish brown silt loam

16 to 22 inches—dark brown cobbly loam  
 22 to 61 inches—brown cobbly fine sandy loam

### ***Properties and Qualities of Doublecreek***

*Depth to bedrock:* More than 60 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 9 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Flybow***

0 to 2 inches—dark yellowish brown extremely gravelly loam  
 2 to 8 inches—dark yellowish brown very gravelly loam  
 8 inches—Imnaha basalt

### ***Properties and Qualities of Flybow***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 0.5 inch  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Schrier soils on north-facing concave backslopes
- Rockly soils on south-facing concave backslopes

### ***Major Use***

Doublecreek and Flybow—livestock grazing

### ***Major Management Limitations***

Doublecreek, Flybow, and Rock outcrop—water erosion, slope  
 Flybow—depth to bedrock, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Flybow soil restricts the rooting depth.
- The shallow depth of the Flybow soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Flybow soil causes a change in the range site and a loss in the potential for forage production.
- The low annual precipitation limits production and seasonal availability of forage.

## ***63—Doublecreek-Langrell complex, 0 to 15 percent slopes***

### ***Composition***

*Doublecreek and similar soils*—55 percent  
*Langrell and similar soils*—30 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Doublecreek—footslopes; Langrell—outwash terraces

*Landform:* Narrow mountain valleys

*Parent material:* Doublecreek—mixed loess and colluvium derived from basalt with a minor influence of volcanic ash; Langrell—glaciofluvial deposits

*Elevation:* 2,000 to 3,400 feet

*Native plants:* Doublecreek—bluebunch wheatgrass, sand dropseed; Langrell—bluebunch wheatgrass, netleaf hackberry, sand dropseed

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

*Slope:* Doublecreek—2 to 15 percent; Langrell—0 to 3 percent

### ***Typical Profile of Doublecreek***

0 to 4 inches—black silt loam

4 to 10 inches—very dark brown silt loam

10 to 16 inches—very dark grayish brown silt loam

16 to 22 inches—dark brown cobbly loam

22 to 61 inches—brown cobbly fine sandy loam

### ***Properties and Qualities of Doublecreek***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Langrell***

0 to 9 inches—very dark gray gravelly loam

9 to 20 inches—very dark grayish brown gravelly loam

20 to 32 inches—very dark grayish brown very gravelly loam

32 to 50 inches—very dark grayish brown extremely cobbly sandy loam

50 to 60 inches—very dark gray extremely gravelly coarse sandy loam

### ***Properties and Qualities of Langrell***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Collegecreek soils in concave areas of toeslopes and fans

### ***Major Uses***

Doublecreek and Langrell—livestock grazing, homesites

### ***Major Management Limitations***

Doublecreek and Langrell—water erosion, slope, road stability

Langrell—seepage potential, depth to extremely cobbly or gravelly layers

### ***General Management Considerations***

#### **Livestock grazing**

- The amount of available water is higher because of surface and subsurface flows from adjacent uplands.
- The seepage potential limits construction of water impoundments on the Langrell soil.

#### **Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Excavation is hampered by the cobbles in the Langrell soil.
- The lower layers of the Langrell soil may be unsuitable for use as landscaping material because of the content of gravel and cobbles. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Cutbanks in excavated areas of the Langrell soil may not be stable and may cave in.

## ***64—Doublecreek-Phys complex, 2 to 15 percent slopes***

### ***Composition***

*Doublecreek and similar soils*—45 percent

*Phys and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Doublecreek—footslopes of canyons; Phys—alluvial fans and terraces

*Landform:* Narrow stream valleys

*Parent material:* Doublecreek—mixed loess and colluvium derived from basalt with a minor influence of volcanic ash; Phys—mixed alluvium

*Elevation:* 1,700 to 3,400 feet

*Native plants:* Bluebunch wheatgrass, netleaf hackberry, sand dropseed

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Doublecreek***

0 to 4 inches—black silt loam

4 to 10 inches—very dark brown silt loam

10 to 16 inches—very dark grayish brown silt loam

16 to 22 inches—dark brown cobbly loam

22 to 61 inches—brown cobbly fine sandy loam

### ***Properties and Qualities of Doublecreek***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

***Typical Profile of Phys***

0 to 10 inches—very dark brown silt loam  
10 to 16 inches—very dark grayish brown cobbly loam  
16 to 23 inches—dark brown very gravelly clay loam  
23 to 60 inches—dark yellowish brown extremely cobbly sandy clay loam

***Properties and Qualities of Phys***

*Depth to bedrock:* More than 60 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Moderate  
*Shrink-swell potential:* Moderate

***Contrasting Inclusions***

- Collegecreek soils in concave areas of toeslopes and fans

***Major Uses***

Doublecreek and Phys—livestock grazing, homesites

***Major Management Limitations***

Doublecreek and Phys—water erosion, slope  
Phys—shrink-swell potential, slope

***General Management Considerations*****Livestock grazing**

- The amount of available water is higher because of surface and subsurface flows from adjacent uplands.

**Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- The steepness of slope may make special design of buildings, access roads, absorption lines necessary.
- Excavation is hampered by the cobbles in the Phys soil.
- The quality of roadbeds and road surfaces on the Phys soil can be adversely affected by shrinking and swelling.
- Septic tank absorption fields on the Phys soil may function poorly because of the limited permeability, which restricts the movement and filtration of effluent.
- The limited permeability of the lower layers of the Phys soil may make special design of absorption lines necessary.
- The lower layers of the Phys soil may be unsuitable for use as landscaping material because of the content of cobbles or gravel. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Cutbanks on the Phys soil are not stable and therefore are subject to slumping.
- Cutbanks in excavated areas of the Phys soil may not be stable and may cave in.

***65—Downards-Anatone-Rock outcrop complex, 60 to 90 percent north slopes******Composition***

*Downards and similar soils*—45 percent  
*Anatone and similar soils*—20 percent

*Rock outcrop*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Downards—north-facing drainageways and concave backslopes;  
 Anatone—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform*: Canyons

*Parent material*: Downards—volcanic ash and colluvium derived from basalt;  
 Anatone—loess and colluvium derived from basalt

*Elevation*: 2,000 to 3,400 feet

*Native plants*: Downards—grand fir, Douglas fir, Engelmann spruce, western larch, Rocky Mountain maple, big huckleberry, longtube twinflower, heartleaf arnica, false Solomon's seal, side-flowered miterwort; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors*:

Mean annual precipitation—20 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 120 days

### ***Typical Profile of Downards***

1 inch to 0—partially decomposed needles, twigs, moss, and cones

0 to 3 inches—very dark brown cobbly loam

3 to 12 inches—very dark grayish brown gravelly loam

12 to 61 inches—dark brown very cobbly clay loam

### ***Properties and Qualities of Downards***

*Depth to bedrock*: More than 60 inches

*Thickness of volcanic ash influence*: Extends to a depth of 7 to 14 inches

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: About 6 inches

*Hazard of erosion*: Very severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock*: 10 to 20 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 2 inches

*Hazard of erosion*: Very severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Harl soils on concave backslopes

### ***Major Uses***

Downards—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Downards, Anatone, and Rock outcrop—slope

Downards and Anatone—water erosion

Anatone—depth to bedrock, cool winter temperatures, slope stability

Downards—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, seedling mortality, plant competition, puddling, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Unsurfaced roads are soft and sticky when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***66—Downards-Emily-Sopher complex, 30 to 60 percent north slopes***

### ***Composition***

*Downards and similar inclusions*—50 percent

*Emily and similar inclusions*—20 percent

*Sopher and similar inclusions*—20 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Downards—north-facing concave upper backslopes; Emily—northwest- and northeast-facing middle and lower backslopes; Sopher—west-facing convex lower backslopes



*Landform:* Canyons

*Parent material:* Downards—volcanic ash and colluvium derived from basalt; Emily—colluvium derived from basalt and mixed with volcanic ash and loess in the upper part; Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt

*Elevation:* 2,000 to 3,400 feet

*Native plants:* Downards—grand fir, Douglas fir, Engelmann spruce, western larch, Rocky Mountain maple, big huckleberry, longtube twinflower, heartleaf arnica, false Solomon's seal, side-flowered miterwort; Emily—ponderosa pine, elk sedge, Idaho fescue, bluebunch wheatgrass; Sopher—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—20 to 24 inches

Mean annual air temperature—42 to 45 degrees F (Downards); 45 to 48 degrees F (Emily and Sopher)

Frost-free period—70 to 120 days (Downards); 100 to 150 days (Emily and Sopher)

### ***Typical Profile of Downards***

1 inch to 0—partially decomposed needles, twigs, moss, and cones

0 to 3 inches—very dark brown cobbly loam

3 to 12 inches—very dark grayish brown gravelly loam

12 to 61 inches—dark brown very cobbly clay loam

### ***Properties and Qualities of Downards***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Emily***

1 inch to 0—slightly decomposed twigs and needles

0 to 5 inches—very dark brown cobbly silt loam

5 to 14 inches—dark brown very cobbly clay loam

14 to 33 inches—dark brown very gravelly clay loam

33 to 60 inches—dark brown very cobbly clay loam

### ***Properties and Qualities of Emily***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles

0 to 2 inches—very dark grayish brown stony loam

2 to 8 inches—dark brown gravelly loam

8 to 18 inches—brown gravelly clay loam  
18 to 24 inches—brown very gravelly clay  
24 to 44 inches—brown very gravelly clay  
44 inches—basalt

### ***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High in the clayey layers

### ***Contrasting Inclusions***

- Harl soils on convex upper backslopes
- Anatone soils on convex upper backslopes

### ***Major Uses***

Downards, Emily, and Sopher—timber production  
Emily—livestock grazing

### ***Major Management Limitations***

Downards, Emily, and Sopher—slope, sheet and rill erosion, equipment limitations, dustiness  
Downards—cut and fill erosion  
Emily and Sopher—available water capacity  
Sopher—depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness of the soil may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft and sticky when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes on the Downards soil.

## **67—Downards-Klicker complex, 15 to 30 percent south slopes**

### ***Composition***

*Downards and similar soils*—60 percent

*Klicker and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Downards—south-facing footslopes and concave backslopes;

Klicker—south-facing shoulders and convex backslopes

*Landform:* Hills, mountains

*Parent material:* Downards—volcanic ash and colluvium derived from basalt; Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the surface layer

*Elevation:* 3,000 to 4,000 feet

*Native plants:* Downards—Douglas fir, ponderosa pine, creambush oceanspray, mallow ninebark, common snowberry, shinyleaf spirea, rose, pinegrass, elk sedge, heartleaf arnica; Klicker—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—20 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Downards***

1 inch to 0—partially decomposed needles, twigs, moss, and cones

0 to 3 inches—very dark brown cobbly loam

3 to 12 inches—very dark grayish brown gravelly loam

12 to 51 inches—dark brown very cobbly clay loam

51 inches—basalt

### ***Properties and Qualities of Downards***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Kamela soils on shoulders and convex backslopes
- Sopher soils on footslopes and concave backslopes

### ***Major Use***

Downards and Klicker—timber production

### ***Major Management Limitations***

Downards and Klicker—soil compaction, seedling mortality, plant competition, puddling, dustiness, low available water capacity

Klicker—sheet and rill erosion, windthrow, fire damage

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the Klicker soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- The content of rock fragments makes tree planting difficult.
- Special precautions may be needed to control soil loss following activities that expose the Klicker soil.
- Trees on the Klicker soil may be blown down when the soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency on the Klicker soil.
- Unsurfaced roads and skid trails on the Klicker soil are dusty when dry.
- Unsurfaced roads and skid trails on the Downards soil are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails are soft when wet.

## ***68—Downards-Klicker complex, 30 to 60 percent south slopes***

### ***Composition***

*Downards and similar soils*—60 percent

*Klicker and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Downards—south-facing concave backslopes; Klicker—south-facing convex backslopes

*Landform:* Hills, mountains

*Parent material:* Downards—volcanic ash and colluvium derived from basalt; Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the surface layer

*Elevation:* 3,000 to 4,000 feet

*Native plants:* Downards—Douglas fir, ponderosa pine, creambush oceanspray, mallow ninebark, common snowberry, shinyleaf spirea, rose, pinegrass, elk

sedge, heartleaf arnica; Klicker—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—20 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

***Typical Profile of Downards***

1 inch to 0—partially decomposed needles, twigs, moss, and cones

0 to 3 inches—very dark brown cobbly loam

3 to 12 inches—very dark grayish brown gravelly clay loam

12 to 51 inches—dark brown very cobbly clay loam

51 inches—basalt

***Properties and Qualities of Downards***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Kamela soils on convex backslopes
- Sopher soils on concave backslopes

***Major Use***

Downards and Klicker—timber production

***Major Management Limitations***

Downards and Klicker—slope, sheet and rill erosion, equipment limitations, soil compaction, soil displacement, seedling mortality, plant competition, fire damage, puddling, dustiness

Klicker—windthrow, low available water capacity

***General Management Considerations***

**Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Trees on the Klicker soil may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads and skid trails on the Downards soil are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails on the Klicker soil are dusty when dry.
- Unsurfaced roads are sticky when wet.

## **69—Downeygulch-Lowerbluff complex, 0 to 15 percent slopes**

### ***Composition***

*Downeygulch and similar soils*—50 percent

*Lowerbluff and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Downeygulch—concave areas of summits; Lowerbluff—convex areas of summits

*Landform:* Plateaus

*Parent material:* Mixed volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 3,400 to 5,500 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Downeygulch***

0 to 13 inches—brown gravelly silt loam

13 to 24 inches—strong brown gravelly silt loam

24 inches—basalt

### ***Properties and Qualities of Downeygulch***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Lowerbluff***

1 inch to 0—partially decomposed needles and twigs

0 to 6 inches—dark brown silt loam

6 to 15 inches—dark yellowish brown gravelly fine sandy loam  
 15 inches—basalt

### ***Properties and Qualities of Lowerbluff***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 4 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Anatone and Bocker soils on shoulders
- Thirstygulch soils along margins of summits

### ***Major Use***

Downeygulch and Lowerbluff—timber production

### ***Major Management Limitations***

Downeygulch and Lowerbluff—soil compaction, seedling mortality, plant competition, windthrow, puddling, dustiness

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***70—Downeygulch-Thirstygulch complex, 15 to 30 percent slopes***

### ***Composition***

*Downeygulch and similar soils*—55 percent

*Thirstygulch and similar soils*—30 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Downeygulch—footslopes and concave backslopes;  
 Thirstygulch—shoulders and convex backslopes

*Landform:* Plateaus

*Parent material:* Mixed volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 4,000 to 5,800 feet

*Native plants:* Downeygulch—grand fir, Douglas fir, ponderosa pine, elk sedge, pinegrass, heartleaf arnica; Thirstygulch—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—20 to 35 inches



Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Downeygulch***

0 to 13 inches—brown gravelly silt loam

13 to 24 inches—brown gravelly silt loam

24 inches—basalt

### ***Properties and Qualities of Downeygulch***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Thirstygulch***

1 inch to 0—decomposed needles and leaves

0 to 10 inches—very dark grayish brown very stony loam

10 to 19 inches—dark brown extremely cobbly silt loam

19 inches—basalt

### ***Properties and Qualities of Thirstygulch***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Tolo soils on north-facing backslopes
- Lowerbluff soils on summits
- Klicker soils on south-facing backslopes

### ***Major Use***

Downeygulch and Thirstygulch—timber production

### ***Major Management Limitations***

Downeygulch and Thirstygulch—sheet and rill erosion, soil compaction, seedling mortality, puddling, dustiness

Downeygulch—cut and fill erosion

Thirstygulch—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes on the Downeygulch soil.

- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails are soft when wet.
- Trees on the Thirstygulch soil may be blown down when the soil is wet and winds are strong.
- The rock fragments in the Thirstygulch soil make tree planting difficult.

## **71—Eggleston gravelly loam, 0 to 2 percent slopes**

### **Composition**

*Eggleston and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position*: Slightly convex areas

*Landform*: Flood plains

*Parent material*: Mixed alluvium

*Elevation*: 3,400 to 4,200 feet

*Native plants*: Spruce, willow

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### **Typical Profile**

0 to 3 inches—very dark brown gravelly loam

3 to 10 inches—very dark grayish brown very gravelly sandy loam

10 to 17 inches—very dark grayish brown extremely gravelly loamy sand

17 to 30 inches—multicolored extremely gravelly sand

30 to 60 inches—multicolored, mottled extremely gravelly sand

### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Drainage class*: Moderately well drained

*Depth to water table (apparent)*: 2 to 3 feet in March through June

*Permeability*: Moderate in the upper part and rapid in the lower part

*Available water capacity*: About 3 inches

*Frequency of flooding*: Rare

*Hazard of erosion*: Slight

### **Contrasting Inclusions**

- Cheval soils in depressions of flood plains
- Matterhorn soils on fan terraces

### **Major Uses**

Livestock grazing, homesites

### **Major Management Limitations**

High water table, permeability, available water capacity, rare flooding

### **General Management Considerations**

#### **Livestock grazing**

- A seasonal high water table increases the amount of moisture in the soil.

- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- The risk of seepage limits construction of water impoundments.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Septic tank absorption fields may function poorly because of wetness late in winter and in spring.
- Because of the rapid permeability in the lower layers, there is a risk of polluting the ground water from onsite sewage disposal systems.
- Seasonal flooding may affect onsite sewage disposal systems.
- The lower layers may be unsuitable for use as landscaping material because of the content of gravel. Stockpile topsoil and use it to reclaim areas disturbed during construction.

### **72—Emily-Wolot complex, 15 to 30 percent slopes**

#### ***Composition***

*Emily and similar soils*—55 percent

*Wolot and similar soils*—30 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Emily—toeslope margins of fans; Wolot—central portion of fans

*Landform:* Emily—narrow canyons; Wolot—head of narrow canyons

*Parent material:* Emily—colluvium derived from basalt and mixed with volcanic ash and loess in the upper part; Wolot—volcanic ash over loess and colluvium

*Elevation:* 2,000 to 3,400 feet

*Native plants:* Emily—ponderosa pine, elk sedge, Idaho fescue, bluebunch wheatgrass; Wolot—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—15 to 24 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 150 days

#### ***Typical Profile of Emily***

1 inch to 0—slightly decomposed twigs and needles

0 to 5 inches—very dark brown cobbly silt loam

5 to 14 inches—dark brown very cobbly clay loam

14 to 33 inches—dark brown very gravelly clay loam

33 to 60 inches—dark brown very cobbly clay loam

#### ***Properties and Qualities of Emily***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* Moderate

### ***Typical Profile of Wolot***

1 inch to 0—mostly needles, twigs, and moss  
 0 to 12 inches—dark brown silt loam  
 12 to 21 inches—yellowish brown silt loam  
 21 to 48 inches—brown silt loam  
 48 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Wolot***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 35 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part  
*Available water capacity:* About 15 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* Moderate

### ***Contrasting Inclusions***

- Sopher soils on footslopes

### ***Major Use***

Emily and Wolot—timber production

### ***Major Management Limitations***

Emily and Wolot—soil compaction, seedling mortality, plant competition, puddling, dustiness  
 Wolot—sheet and rill erosion, cut and fill erosion

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Because the soils are hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails on the Wolot soil are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails on the Emily soil are dusty when dry.
- Special precautions may be needed to control soil loss following activities that expose the Wolot soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes on the Wolot soil.

## ***73—Endoaquolls, 0 to 3 percent slopes***

### ***Composition***

*Endoaquolls, mesic, and similar inclusions—85 percent*  
*Contrasting inclusions—15 percent*

### ***Setting***

*Landscape position:* Depressions adjacent to footslopes  
*Landform:* Outwash terraces  
*Parent material:* Glaciofluvial deposits

*Elevation:* 2,800 to 3,100 feet

*Native plants:* Sedge, tufted hairgrass, rush

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Reference Profile of Endoaquolls***

0 to 10 inches—very dark brown, mottled loam

10 to 16 inches—dark brown, mottled loam

16 to 21 inches—dark brown very cobbly loam

21 to 31 inches—brown extremely stony loam

31 to 60 inches—dark brown extremely cobbly loamy fine sand

### ***Properties and Qualities of Endoaquolls***

*Depth to bedrock:* More than 60 inches

*Depth to extremely cobbly sandy layer:* 20 to 35 inches

*Drainage class:* Somewhat poorly drained or poorly drained

*Depth to water table (apparent):* 0.5 to 1.5 feet in March through June

*Permeability:* Moderate

*Available water capacity:* About 4 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Langrell soils on adjacent outwash terraces at slightly higher elevations
- Conley soils on alluvial fans at slightly higher elevations
- Phys soils on alluvial fans at slightly higher elevations

### ***Major Use***

Pasture

### ***Major Management Limitations***

High water table, available water capacity

### ***General Management Considerations***

#### **Pasture**

- Only shallow-rooted, water-tolerant plants are suited to these soils.
- Wetness limits the choice of adapted plants and increases the risk of winterkill due to frost action.
- The seasonal high water table restricts growth of deep-rooted crops.
- Flood irrigation may result in an induced high water table and reduce production of deep-rooted crops.
- The risk of seepage limits construction of water impoundments.

## ***74—Ferguson very fine sandy loam, 2 to 15 percent slopes***

### ***Composition***

*Ferguson and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Middle and lower margins

*Landform:* Outwash fans

*Parent material:* Dominantly granitic glaciofluvial deposits with a mantle of volcanic ash

*Elevation:* 4,400 to 5,300 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—30 to 40 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### **Typical Profile**

1 inch to 0—slightly decomposed twigs and needles

0 to 7 inches—brown very fine sandy loam

7 to 24 inches—yellowish brown very fine sandy loam

24 to 38 inches—brown very stony sandy loam

38 to 45 inches—brown very gravelly sandy loam

45 to 60 inches—dark yellowish brown very gravelly loamy coarse sand

### **Soil Properties and Qualities**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Slight or moderate

*Potential frost action:* Moderate

### **Contrasting Inclusions**

- Limberjim soils on adjacent footslopes
- Minam soils that have surface stones and are on the upper margins of fans
- Rondowa soils on the lower margins of fans
- Minam soils on the lower margins of fans

### **Major Uses**

Timber production, homesites

### **Major Management Limitations**

Hazard of compaction, dustiness, water erosion, stones in lower layers, frost heaving, plant competition

### **General Management Considerations**

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

#### **Homesites**

- Excavation increases the risk of water erosion.

- Disturbed areas are subject to soil erosion.
- The stones and gravel in the soil hamper excavation.
- Cutbanks are not stable and therefore are subject to slumping.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The steepness of slope may make special design of absorption lines necessary.
- Because of the permeability in the lower layers, there is a risk of polluting the ground water from onsite sewage disposal systems.
- The steepness of slope may make special design of buildings and access roads necessary.
- Cutbanks in excavated areas may not be stable and may cave in.
- The lower layers may be unsuitable for use as landscaping material because of the content of gravel. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are very dusty when dry because of the surface volcanic ash.

### **75—Ferguson very fine sandy loam, 15 to 30 percent north slopes**

#### **Composition**

*Ferguson and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position*: North-facing backslopes

*Landform*: Moraines

*Parent material*: Dominantly granitic glaciofluvial deposits with a mantle of volcanic ash

*Elevation*: 4,000 to 5,400 feet

*Native plants*: Grand fir, western larch, Douglas fir, prince's pine, twinflower

*Climatic factors*:

Mean annual precipitation—30 to 40 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground*: January through March

#### **Typical Profile**

1 inch to 0—slightly decomposed twigs and needles

0 to 7 inches—brown very fine sandy loam

7 to 24 inches—yellowish brown very fine sandy loam

24 to 38 inches—brown very stony sandy loam

38 to 45 inches—brown very gravelly sandy loam

45 to 60 inches—dark yellowish brown very gravelly loamy coarse sand

#### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Thickness of volcanic ash mantle*: Extends to a depth of 14 to 25 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 8 inches

*Hazard of erosion*: Severe



### ***Contrasting Inclusions***

- Limberjim soils on north-facing backslopes
- Syrupcreek soils on north-facing backslopes
- Rondowa soils on lower lateral moraines
- Bucketlake soils on adjacent backslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Soil displacement, soil compaction, water erosion, dustiness, equipment operability, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- This soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails on hillsides are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***76—Ferguson very fine sandy loam, 30 to 60 percent north slopes***

### ***Composition***

*Ferguson and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Moraines

*Parent material:* Dominantly granitic glaciofluvial deposits with a mantle of volcanic ash

*Elevation:* 4,000 to 5,400 feet

*Native plants:* Grand fir, western larch, Douglas fir, prince's pine, twinflower

*Climatic factors:*

Mean annual precipitation—30 to 40 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile***

1 inch to 0—slightly decomposed twigs and needles

0 to 7 inches—brown very fine sandy loam

7 to 24 inches—yellowish brown very fine sandy loam

24 to 38 inches—brown very stony sandy loam

38 to 45 inches—brown very gravelly sandy loam

45 to 60 inches—dark yellowish brown very gravelly loamy coarse sand

***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Limberjim soils on north-facing backslopes
- Syrupcreek soils on north-facing backslopes
- Bucketlake soils on north-facing backslopes
- Rondowa soils on lower lateral moraines

***Major Use***

Timber production

***Major Management Limitations***

Slope, soil compaction, soil displacement, dustiness, plant competition, equipment operability, water erosion

***General Management Considerations*****Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- This soil is susceptible to being pushed from its natural position during equipment operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

***77—Ferguson very fine sandy loam, 15 to 30 percent south slopes******Composition***

*Ferguson and similar soils—*85 percent

*Contrasting inclusions—*15 percent

***Setting***

*Landscape position:* South-facing backslopes

*Landform:* Moraines

*Parent material:* Dominantly granitic glaciofluvial deposits with a mantle of volcanic ash

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Douglas fir, ponderosa pine, prince's pine, twinflower

*Climatic factors:*

Mean annual precipitation—30 to 40 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile***

1 inch to 0—slightly decomposed twigs and needles

0 to 7 inches—brown very fine sandy loam

7 to 24 inches—yellowish brown very fine sandy loam

24 to 38 inches—brown very stony sandy loam

38 to 45 inches—brown very gravelly sandy loam

45 to 60 inches—dark yellowish brown very gravelly loamy coarse sand

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rondowa soils on lower lateral moraines
- Klicker soils on south-facing backslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Soil displacement, soil compaction, water erosion, dustiness, equipment operability, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- This soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails on hillsides are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***78—Ferguson very fine sandy loam, 30 to 60 percent south slopes***

### ***Composition***

*Ferguson and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* South-facing backslopes

*Landform:* Moraines

*Parent material:* Dominantly granitic glaciofluvial deposits with a mantle of volcanic ash

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Douglas fir, ponderosa pine, prince's pine, twinflower

*Climatic factors:*

Mean annual precipitation—30 to 40 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile***

1 inch to 0—slightly decomposed twigs and needles

0 to 7 inches—brown very fine sandy loam

7 to 24 inches—yellowish brown very fine sandy loam

24 to 38 inches—brown very stony sandy loam

38 to 45 inches—brown very gravelly sandy loam

45 to 60 inches—dark yellowish brown very gravelly loamy coarse sand

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 25 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Klicker soils on south-facing backslopes
- Rondowa soils on lower lateral moraines

### ***Major Use***

Timber production

### ***Major Management Limitations***

Slope, water erosion, equipment operability, soil compaction, soil displacement, dustiness, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- This soil is susceptible to being pushed from its natural position during equipment operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## **79—Flybow-Rubble land-Rock outcrop complex, 30 to 60 percent south slopes**

### ***Composition***

*Flybow and similar soils*—40 percent

*Rubble land*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Flybow—south-facing convex backslopes; Rubble land—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Flybow—colluvium derived from basalt

*Elevation:* 800 to 2,800 feet

*Native plants:* Flybow—bluebunch wheatgrass, sand dropseed, buckwheat

*Climatic factors:*

Mean annual precipitation—12 to 15 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—120 to 170 days

### ***Typical Profile of Flybow***

0 to 2 inches—dark yellowish brown extremely gravelly loam

2 to 8 inches—dark yellowish brown very gravelly loam

8 inches—Imnaha basalt

### ***Properties and Qualities of Flybow***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Lickskillet soils on concave backslopes

### ***Major Use***

Flybow—livestock grazing

### ***Major Management Limitations***

Flybow—depth to bedrock, water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits forage production.

## **80—Flybow-Rubble land-Rock outcrop complex, 60 to 90 percent south slopes**

### ***Composition***

*Flybow and similar soils*—40 percent

*Rubble land*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Flybow—south-facing convex backslopes; Rubble land—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Flybow—colluvium derived from basalt

*Elevation:* 800 to 2,800 feet

*Native plants:* Flybow—bluebunch wheatgrass, sand dropseed, buckwheat

*Climatic factors:*

Mean annual precipitation—12 to 15 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—120 to 170 days

### ***Typical Profile of Flybow***

0 to 2 inches—dark yellowish brown extremely gravelly loam

2 to 8 inches—dark yellowish brown very gravelly loam

8 inches—Imnaha basalt

### ***Properties and Qualities of Flybow***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Lickskillet soils on concave backslopes

### ***Major Use***

Flybow—livestock grazing

### ***Major Management Limitations***

Flybow, Rubble land, and Rock outcrop—slope

Flybow—depth to bedrock, water erosion, slope stability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or

wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

## **81—Flycreek-Flyvalley complex, 2 to 15 percent slopes**

### ***Composition***

*Flycreek and similar soils*—65 percent

*Flyvalley and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Flycreek—concave areas of summits; Flyvalley—shoulders and convex areas of summits

*Landform:* Plateaus

*Parent material:* Flycreek—volcanic ash over residuum and colluvium derived from acidic tuff; Flyvalley—volcanic ash over acidic tuff

*Elevation:* 4,000 to 5,800 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Flycreek***

3 inches to 0—partially decomposed moss, needles, and twigs

0 to 6 inches—very dark grayish brown silt loam

6 to 17 inches—brown silt loam

17 to 20 inches—dark yellowish brown gravelly clay loam

20 to 31 inches—dark yellowish brown gravelly clay

31 to 35 inches—brown gravelly clay loam

35 inches—weathered acidic basalt

### ***Properties and Qualities of Flycreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 22 inches

*Depth to claypan:* 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and slow in the lower part

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Flyvalley***

1 inch to 0—partially decomposed twigs and needles

0 to 6 inches—dark brown silt loam

6 to 19 inches—brown loam

19 inches—hard tuff



### ***Properties and Qualities of Flyvalley***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Btree and Geisercreek soils on adjacent backslopes
- Anatone soils in convex areas

### ***Major Use***

Flycreek and Flyvalley—timber production

### ***Major Management Limitations***

Flycreek and Flyvalley—soil compaction, plant competition, windthrow, puddling, dustiness

Flycreek—depth to claypan

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Trees may be blown down when the soils are wet and winds are strong.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***82—Freels silt loam, 0 to 3 percent slopes***

### ***Composition***

*Freels and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Treads adjacent to meander channels

*Landform:* Flood plains, low stream terraces

*Parent material:* Alluvium derived from loess eroded from surrounding hills

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Basin wildrye, willow, Idaho fescue, bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 5 inches—black silt loam

5 to 34 inches—very dark brown silt loam

34 to 38 inches—very dark grayish brown silt loam

38 to 51 inches—very dark grayish brown, mottled silt loam

51 to 60 inches—dark grayish brown silt loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Moderately well drained

*Depth to water table (apparent):* 3 to 5 feet in March through June

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Frequency of flooding:* Rare in March through June

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Cheval soils in depressions
- Josset soils in meander channels
- Sturgill soils in depressions
- Lostine soils on slightly higher stream terraces

### ***Major Uses***

Hay and pasture (fig. 12), livestock grazing

### ***Major Management Limitations***

High water table, flooding

### ***General Management Considerations***

#### **Hay and pasture**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- The risk of seepage limits construction of water impoundments.

#### **Livestock grazing**

- Heavy season-long grazing in riparian areas may decrease the abundance of plants that help to stabilize streambanks and moderate water temperatures.
- A seasonal high water table increases the amount of moisture in the soil.
- The amount of available water is higher because of surface and subsurface flows from adjacent uplands.



**Figure 12.—Alfalfa on narrow stream terraces in an area of Freels silt loam, 0 to 3 percent slopes, in center. This area is northeast of the town of Wallowa.**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

### **83—Geisercreek silt loam, 15 to 30 percent north slopes**

#### **Composition**

*Geisercreek and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* North-facing backslopes and footslopes

*Landform:* Mountains

*Parent material:* Mantle of volcanic ash over residuum and colluvium derived from soft tuff

*Elevation:* 4,800 to 5,300 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### **Typical Profile**

2 inches to 0—partially decomposed needles, twigs, and branches

0 to 5 inches—dark yellowish brown silt loam

5 to 14 inches—brown silt loam

14 to 19 inches—yellowish brown silt loam

19 to 23 inches—dark yellowish brown silt loam

23 to 29 inches—olive brown clay

29 to 35 inches—brown cobbly clay

35 to 60 inches—dark yellowish brown cobbly silty clay loam

#### **Soil Properties and Qualities**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 15 to 22 inches

*Depth to claypan:* 20 to 35 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and slow in the lower part

*Available water capacity:* About 11 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

#### **Contrasting Inclusions**

- Btree and Limberjim soils on footslopes and backslopes
- Flycreek and Syrupcreek soils on shoulders

#### **Major Use**

Timber production

### ***Major Management Limitations***

Sheet and rill erosion, cut and fill erosion, soil compaction, plant competition, puddling, dustiness, depth to claypan

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft and sticky when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***84—Gelsinger silt loam, 2 to 8 percent slopes***

### ***Composition***

*Gelsinger and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Concave areas

*Landform*: Fans

*Parent material*: Loess over clayey colluvium derived from basalt

*Elevation*: 2,700 to 3,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 47 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 10 inches—very dark brown silt loam

10 to 14 inches—very dark grayish brown silty clay loam

14 to 21 inches—dark brown silty clay

21 to 36 inches—dark yellowish brown silty clay loam

36 to 45 inches—brown clay loam

45 to 51 inches—brown loam

51 to 60 inches—brown clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to soft powdery calcium carbonate*: 20 to 35 inches

*Depth to clayey layers*: 11 to 23 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 10 inches

*Hazard of erosion*: Slight

*Shrink-swell potential*: High

*Corrosivity to uncoated steel*: High

### ***Contrasting Inclusions***

- Phys soils on the upper margins of alluvial fans
- Ramo soils on adjacent footslopes of fans
- Langrell soils on nearly level outwash terraces
- Conley soils on the lower margins of alluvial fans

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Permeability, shrink-swell potential, water erosion, corrosivity, depth to clayey layers

### ***General Management Considerations***

#### **Hay and pasture**

- The clayey layers restrict the rooting depth.
- The clayey layers expand when wet and contract when dry, which can damage plant roots.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The risk of seepage limits construction of water impoundments.
- The low annual precipitation limits production and seasonal availability of forage.

#### **Irrigated cropland**

- A tillage pan forms easily if the soil is excessively cultivated.
- Erosion and downcutting may occur in irrigation ditches.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Homesites**

- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- The slowly permeable lower layers may make special design of absorption lines necessary.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- The clayey layers may be unsuitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are dusty when dry.

## ***85—Gelsinger silt loam, 8 to 15 percent slopes***

### ***Composition***

*Gelsinger and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Concave areas

*Landform*: Fans

*Parent material:* Loess and clayey colluvium derived from basalt

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 47 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 10 inches—very dark brown silt loam

10 to 14 inches—very dark grayish brown silty clay loam

14 to 21 inches—dark brown silty clay

21 to 36 inches—dark yellowish brown silty clay loam

36 to 45 inches—brown clay loam

45 to 51 inches—brown loam

51 to 60 inches—brown clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to soft powdery calcium carbonate:* 20 to 35 inches

*Depth to clayey layers:* 11 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Phys soils on the upper margins of alluvial fans
- Ramo soils on the lower margins of alluvial fans
- Laufer soils on adjacent shoulders
- Thiessen soils on adjacent footslopes of canyons

### ***Major Uses***

Irrigated cropland, livestock grazing, hay and pasture, homesites

### ***Major Management Limitations***

Shrink-swell potential, corrosivity, water erosion, permeability, low annual precipitation, slope, depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- The clayey layers restrict the rooting depth.
- The clayey layers expand when wet and contract when dry, which can damage plant roots.
- The low annual precipitation limits production and seasonal availability of forage.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.

#### **Hay and pasture**

- Soil erosion caused by snowmelt and runoff in winter reduces productivity unless conservation practices are applied.

**Irrigated cropland**

- A tillage pan forms easily if the soil is excessively cultivated.
- Erosion and downcutting may occur in irrigation ditches.
- The risk of seepage limits construction of water impoundments.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.

**Homesites**

- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- The slowly permeable lower layers and steepness of slope may make special design of absorption lines necessary.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of buildings and access roads necessary.
- The clayey layers may be unsuitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are dusty when dry.

## **86—Getaway cobbly silt loam, 15 to 30 percent north slopes**

**Composition**

*Getaway and similar soils*—85 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position*: North-facing backslopes

*Landform*: Canyons

*Parent material*: Colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation*: 3,000 to 5,000 feet

*Native plants*: Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam



13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* Moderate

### ***Contrasting Inclusions***

- Harlow soils on shoulders
- Rock outcrop on shoulders
- Sweiting soils on shoulders
- Klickson soils on footslopes
- Larabee soils on shoulders

### ***Major Use***

Timber production

### ***Major Management Limitations***

Permeability, soil compaction, cobbles on soil surface, equipment operability, seedling mortality, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are dusty when dry.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layer. Skid trails are soft when wet.

## ***87—Getaway cobbly silt loam, 30 to 60 percent north slopes***

### ***Composition***

*Getaway and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Canyons

*Parent material:* Colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 3,000 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

- Mean annual precipitation—17 to 30 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile***

- 1 inch to 0—needles and twigs
- 0 to 13 inches—very dark brown cobbly silt loam
- 13 to 48 inches—dark brown very cobbly silty clay loam
- 48 inches—basalt

***Soil Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Harlow soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Sweiting soils on shoulders
- Tolo soils on concave backslopes
- Klickson soils on concave backslopes
- Larabee soils on convex backslopes

***Major Use***

Timber production

***Major Management Limitations***

Slope, equipment operability, water erosion, permeability, soil compaction, cobbles on soil surface, soil displacement, seedling mortality, plant competition, fire damage

***General Management Considerations*****Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- This soil is susceptible to being pushed from its natural position during equipment operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layer. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## **88—Getaway-Anatone-Rock outcrop complex, 60 to 90 percent slopes**

### ***Composition***

*Getaway and similar soils*—45 percent

*Anatone and similar soils*—30 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Getaway—north-facing concave backslopes; Anatone—south-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north- and south-facing backslopes

*Landform:* Canyons

*Parent material:* Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Getaway—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—15 to 25 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Kahler and Klickson soils on north-facing backslopes

- Larabee soils on north-facing concave backslopes
- Kamela and Klicker soils on south-facing backslopes
- Bocker soils on convex backslopes

### ***Major Uses***

Getaway—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Getaway, Anatone, and Rock outcrop—slope

Getaway and Anatone—water erosion

Getaway—soil compaction, equipment operability, soil displacement, seedling mortality, plant competition, fire damage, sheet and rill erosion, cut and fill erosion

Anatone—depth to bedrock, available water capacity, very stony soil surface, cool winter temperatures, slope stability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.

## **89—Getaway-Harlow complex, 15 to 30 percent north slopes**

### ***Composition***

*Getaway and similar soils*—50 percent

*Harlow and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Getaway—north-facing backslopes and footslopes; Harlow—west-facing backslopes and shoulders

*Landform:* Canyons

*Parent material:* Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Harlow—loess and colluvium derived from basalt

*Elevation:* 3,000 to 5,000 feet

*Native plants:* Getaway—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker soils on west-facing shoulders

- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Larabee soils on north-facing shoulders
- Klickson soils on north-facing footslopes

### ***Major Uses***

Getaway—timber production

Harlow—livestock grazing

### ***Major Management Limitations***

Getaway and Harlow—water erosion, permeability, slope

Getaway—cobblestones on soil surface, soil compaction, equipment operability, seedling mortality, plant competition

Harlow—stones on soil surface, available water capacity, shrink-swell potential, depth to clayey layers, depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- Depth to bedrock limits construction of water impoundments.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers in the soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The very stony upper layer of the soil restricts the operation of ground seeding equipment.
- Droughtiness of the soil may limit the success of seedlings and the choice of species for seedlings.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are dusty when dry.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layer of the soil. Skid trails are soft when wet.

## ***90—Getaway-Harlow complex, 30 to 60 percent north slopes***

### ***Composition***

Getaway and similar soils—50 percent

Harlow and similar soils—35 percent

Contrasting inclusions—15 percent

### ***Setting***

*Landscape position:* Getaway—north-facing backslopes; Harlow—west-facing backslopes

*Landform:* Canyons

*Parent material:* Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Harlow—loess and colluvium derived from basalt

*Elevation:* 3,000 to 5,000 feet

*Native plants:* Getaway—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Snell soils on west-facing concave backslopes and adjacent south-facing slopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Larabee soils on north-facing convex backslopes
- Klickson soils on north-facing concave backslopes

### ***Major Uses***

Getaway—timber production

Harlow—livestock grazing

### ***Major Management Limitations***

Getaway and Harlow—slope, water erosion, permeability



Getaway—cobblestones on soil surface, soil compaction, equipment operability, seedling mortality, plant competition, fire damage

Harlow—stones on soil surface, available water capacity, shrink-swell potential, depth to clayey layers, depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers in the soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***91—Getaway-Harlow-Rock outcrop complex, 60 to 90 percent north slopes***

### ***Composition***

*Getaway and similar soils*—40 percent

*Harlow and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Getaway—north-facing backslopes; Harlow—west-facing backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north- and west-facing backslopes

*Landform:* Canyons

*Parent material:* Gateway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Harlow—loess and colluvium derived from basalt

*Elevation:* 3,000 to 5,000 feet

*Native plants:* Getaway—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Snell soils on west-facing concave backslopes and adjacent south-facing backslopes
- Larabee soils on north-facing convex backslopes
- Bocker soils on west-facing convex backslopes
- Klickson soils on north-facing concave backslopes

### ***Major Uses***

Getaway—timber production

Harlow—livestock grazing

### ***Major Management Limitations***

Getaway, Harlow, and Rock outcrop—slope

Getaway and Harlow—water erosion, permeability

Getaway—cobblestones on soil surface, soil compaction, equipment operability, cut and fill erosion, soil displacement, seedling mortality, plant competition, fire damage

Harlow—stones on soil surface, available water capacity, shrink-swell potential, depth to clayey layers, depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers in the soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness of the soil may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layer. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.
- Rock outcrop can make tree planting difficult.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.

## ***92—Getaway-Linecreek-Anatone complex, 30 to 60 percent slopes***

### ***Composition***

*Getaway and similar soils*—35 percent

*Linecreek and similar soils*—30 percent

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Getaway—north-facing concave backslopes; Linecreek—north-facing V-shaped drainageways of backslopes; Anatone—west-facing convex backslopes

*Landform:* Canyons

*Parent material:* Getaway and Linecreek—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Getaway and Linecreek—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam

9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam

22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam

35 to 50 inches—yellowish brown extremely cobbly fine sandy loam

50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 11 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Kahler and Klickson soils on north-facing concave backslopes
- Larabee soils on north-facing convex backslopes
- Kamela and Klicker soils on south-facing concave backslopes
- Bocker soils on convex backslopes

### ***Major Uses***

Getaway and Linecreek—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Getaway, Linecreek, and Anatone—slope, water erosion

Getaway and Linecreek—equipment operability, soil displacement, plant competition, sheet and rill erosion, fire damage, puddling, dustiness

Getaway—soil compaction, seedling mortality

Anatone—depth to bedrock, available water capacity, cool winter temperatures, very stony soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- To minimize soil damage from compaction of the Getaway soil, carefully choose the type of equipment and the timing of operations.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.

### **93—Getaway-Snell complex, 30 to 70 percent north slopes**

#### ***Composition***

*Getaway and similar soils*—50 percent

*Snell and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Getaway—drainageways of north-facing backslopes; Snell—north-facing convex upper backslopes

*Landform:* Canyons

*Parent material:* Gateway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Snell—loess and colluvium derived from basalt

*Elevation:* 3,000 to 5,000 feet

*Native plants:* Getaway—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Snell—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown stony silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

#### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

#### ***Typical Profile of Snell***

0 to 4 inches—black stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

#### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Harlow and Bocker soils on backslopes and near areas of Rock outcrop
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Larabee soils on convex backslopes
- Klickson soils on concave backslopes

### ***Major Uses***

Getaway—timber production

Snell—livestock grazing

### ***Major Management Limitations***

Getaway and Snell—slope, water erosion, permeability

Getaway—cobblestones on soil surface, soil compaction, equipment operability, seedling mortality, plant competition, fire damage

Snell—stones on soil surface, shrink-swell potential, available water capacity, depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layer. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***94—Gwin-Kettenbach-Rock outcrop complex, 30 to 60 percent south slopes***

### ***Composition***

Gwin and similar soils—55 percent

Kettenbach and similar soils—20 percent



*Rock outcrop*—10 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwin—south-facing convex backslopes; Kettenbach—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 800 to 4,000 feet

*Native plants:* Gwin and Kettenbach—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—15 to 23 inches

Mean annual air temperature—45 to 51 degrees F

Frost-free period—100 to 160 days

### ***Typical Profile of Gwin***

0 to 5 inches—very dark brown very gravelly silt loam  
 5 to 9 inches—very dark brown very cobbly silt loam  
 9 to 13 inches—dark brown very cobbly silty clay loam  
 13 inches—basalt

### ***Properties and Qualities of Gwin***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Kettenbach***

0 to 8 inches—very dark brown very cobbly loam  
 8 to 16 inches—very dark grayish brown very cobbly loam  
 16 to 24 inches—dark brown very cobbly clay loam  
 24 inches—basalt

### ***Properties and Qualities of Kettenbach***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rockly soils on convex backslopes
- Dixiejett soils on concave backslopes
- Gwinly soils on convex backslopes
- Harlow and Snell soils on upper backslopes

### ***Major Use***

Gwin and Kettenbach—livestock grazing

### ***Major Management Limitations***

Gwin, Kettenbach, and Rock outcrop—slope

Gwin and Kettenbach—depth to bedrock, water erosion, available water capacity, droughtiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Gwin soil restricts the rooting depth.
- The shallow depth of the Gwin soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Damage to the Gwin soil and to the plants on the soil may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.
- The low annual precipitation limits production and seasonal availability of forage.

### ***95—Gwin-Kettenbach-Rock outcrop complex, 60 to 90 percent south slopes***

#### ***Composition***

*Gwin and similar soils*—55 percent

*Kettenbach and similar soils*—20 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Gwin—south-facing convex backslopes; Kettenbach—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 800 to 4,000 feet

*Native plants:* Gwin and Kettenbach—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—15 to 23 inches

Mean annual air temperature—45 to 51 degrees F

Frost-free period—100 to 160 days

#### ***Typical Profile of Gwin***

0 to 5 inches—very dark brown very gravelly silt loam

5 to 9 inches—very dark brown very cobbly silt loam

9 to 13 inches—dark brown very cobbly silty clay loam

13 inches—basalt

#### ***Properties and Qualities of Gwin***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Kettenbach***

0 to 8 inches—very dark brown very cobbly loam  
 8 to 16 inches—very dark grayish brown very cobbly loam  
 16 to 24 inches—dark brown very cobbly clay loam  
 24 inches—basalt

### ***Properties and Qualities of Kettenbach***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Rockly soils on convex backslopes
- Dixiejett soils on concave backslopes
- Gwinly soils on convex backslopes
- Harlow and Snell soils on upper backslopes

### ***Major Use***

Gwin and Kettenbach—livestock grazing

### ***Major Management Limitations***

Gwin, Kettenbach, and Rock outcrop—slope  
 Gwin and Kettenbach—water erosion, available water capacity, droughtiness  
 Gwin—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Gwin soil restricts the rooting depth.
- The shallow depth of the Gwin soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Damage to the Gwin soil and to the plants on the soil may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.

## ***96—Gwin-Klickson-Kettenbach association, 60 to 90 percent slopes***

### ***Composition***

*Gwin and similar soils*—35 percent  
*Klickson and similar soils*—30 percent  
*Kettenbach and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwin—south-facing convex backslopes; Klickson—north-facing middle backslopes; Kettenbach—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Gwin and Kettenbach—loess and colluvium derived from basalt; Klickson—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 800 to 4,000 feet

*Native plants:* Gwin and Kettenbach—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Klickson—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 51 degrees F (Gwin and Kettenbach); 41 to 45 degrees F (Klickson)

Frost-free period—100 to 160 days (Gwin and Kettenbach); 70 to 100 days (Klickson)

### ***Typical Profile of Gwin***

0 to 5 inches—very dark brown very gravelly silt loam

5 to 9 inches—very dark brown very cobbly silt loam

9 to 13 inches—dark brown very cobbly silty clay loam

13 inches—basalt

### ***Properties and Qualities of Gwin***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 7 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Kettenbach***

0 to 8 inches—very dark brown very cobbly loam

8 to 16 inches—very dark grayish brown very cobbly loam

16 to 24 inches—dark brown very cobbly clay loam

24 inches—basalt

### ***Properties and Qualities of Kettenbach***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Emily soils on north-facing concave backslopes
- Larabee soils on north-facing concave backslopes
- Dixiejett soils on south-facing concave backslopes
- Rockly soils on south-facing convex backslopes
- Gwinly soils on south-facing convex backslopes

### ***Major Uses***

Gwin and Kettenbach—livestock grazing

Klickson—timber production

### ***Major Management Limitations***

Gwin, Kettenbach, and Klickson—slope, water erosion

Gwin and Kettenbach—available water capacity, droughtiness

Gwin—depth to bedrock

Klickson—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, seedling mortality, plant competition, fire damage, puddling, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Gwin soil restricts the rooting depth.
- The shallow depth of the Gwin soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Damage to the Gwin soil and to the plants on the soil may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness of the soils may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.

- Unsurfaced roads are soft and sticky when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Rock fragments on the soil make tree planting difficult.

## **97—Gwinly-Kettenbach-Rock outcrop complex, 60 to 90 percent south slopes**

### ***Composition***

*Gwinly and similar soils*—40 percent

*Kettenbach and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwinly—south-facing convex backslopes; Kettenbach—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,500 to 4,000 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Kettenbach—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay

17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Kettenbach***

0 to 8 inches—very dark brown very cobbly loam

8 to 16 inches—very dark grayish brown very cobbly loam

16 to 24 inches—dark brown very cobbly clay loam

24 inches—basalt

### ***Properties and Qualities of Kettenbach***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Mallory soils on concave backslopes
- Rocky soils on convex backslopes
- Gwin soils on convex backslopes

### ***Major Use***

Gwinly and Kettenbach—livestock grazing

### ***Major Management Limitations***

Gwinly, Kettenbach, and Rock outcrop—slope

Gwinly and Kettenbach—water erosion, droughtiness, available water capacity

Gwinly—depth to clayey layers, shrink-swell potential, permeability

### ***General Management Considerations***

#### ***Livestock grazing***

- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The clayey layers in the Gwinly soil restrict the rooting depth.
- The clayey layers in the Gwinly soil expand when wet and contract when dry, which can damage plant roots.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.
- Droughtiness may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.

## ***98—Gwinly-Mallory complex, 3 to 30 percent slopes***

### ***Composition***

*Gwinly and similar soils*—40 percent

*Mallory and similar soils*—35 percent

*Contrasting inclusions*—25 percent

### ***Setting***

*Landscape position:* Gwinly—shoulders and convex backslopes; Mallory—concave middle backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,500 to 4,000 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Mallory—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days



***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
4 to 10 inches—dark brown very cobbly silty clay loam  
10 to 17 inches—dark yellowish brown extremely cobbly clay  
17 inches—basalt

***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam  
8 to 11 inches—dark brown very cobbly clay loam  
11 to 26 inches—dark reddish brown extremely cobbly clay  
26 inches—basalt

***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

***Contrasting Inclusions***

- Rockly soils on shoulders
- Rock outcrop on shoulders and backslopes
- Kettenbach soils on footslopes and concave backslopes

***Major Use***

Gwinly and Mallory—livestock grazing

***Major Management Limitations***

Gwinly and Mallory—depth to clayey layers, shrink-swell potential, available water capacity  
Gwinly—depth to bedrock, water erosion  
Mallory—very stony soil surface

***General Management Considerations******Livestock grazing***

- The clayey lower layers restrict the rooting depth.
- The clayey lower layers expand when wet and contract when dry, which can damage plant roots.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The bedrock in the Gwinly soil restricts the rooting depth.

- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Gwinly soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion on the Gwinly soil is high where there is little plant cover protecting the surface layer.
- Depth to bedrock in the Gwinly soil limits construction of water impoundments.
- The very stony upper layer of the Mallory soil restricts the operation of ground seeding equipment.

## **99—Gwinly-Mallory complex, 30 to 70 percent south slopes**

### ***Composition***

*Gwinly and similar soils*—40 percent

*Mallory and similar soils*—35 percent

*Contrasting inclusions*—25 percent

### ***Setting***

*Landscape position:* Gwinly—south-facing convex backslopes; Mallory—south-facing concave middle backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,400 to 4,100 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Mallory—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay

17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam

8 to 11 inches—dark brown very cobbly clay loam

11 to 26 inches—dark reddish brown extremely cobbly clay

26 inches—basalt

### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Rockly soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed basalt on backslopes
- Kettenbach soils on footslopes and concave backslopes
- Gwin soils on convex backslopes

### ***Major Use***

Gwinly and Mallory—livestock grazing

### ***Major Management Limitations***

Gwinly and Mallory—depth to clayey layers, shrink-swell potential, available water capacity, stability, slope

Gwinly—depth to bedrock, water erosion

Mallory—very stony soil surface

### ***General Management Considerations***

#### ***Livestock grazing***

- The clayey lower layers restrict the rooting depth.
- The clayey lower layers expand when wet and contract when dry, which can damage plant roots.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Gwinly soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion on the Gwinly soil is high where there is little plant cover protecting the surface layer.

## ***100—Gwinly-Mallory-Kettenbach complex, 15 to 30 percent south slopes***

### ***Composition***

*Gwinly and similar soils*—35 percent

*Mallory and similar soils*—25 percent

*Kettenbach and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwinly—south-facing shoulders and convex backslopes;

Mallory—south-facing middle backslopes; Kettenbach—south-facing footslopes and concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,500 to 4,000 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Mallory and Kettenbach—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay

17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam

8 to 11 inches—dark brown very cobbly clay loam

11 to 26 inches—dark reddish brown extremely cobbly clay

26 inches—basalt

### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Kettenbach***

0 to 8 inches—very dark brown very cobbly loam

8 to 16 inches—very dark grayish brown very cobbly loam

16 to 24 inches—dark brown very cobbly clay loam

24 inches—basalt

### ***Properties and Qualities of Kettenbach***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rockly soils on shoulders and convex backslopes
- Rock outcrop on shoulders and backslopes
- Gwin soils on shoulders

### ***Major Use***

Gwinly, Mallory, and Kettenbach—livestock grazing

### ***Major Management Limitations***

Gwinly, Mallory, and Kettenbach—water erosion, available water capacity

Gwinly and Mallory—shrink-swell potential, depth to clayey layers, permeability

Mallory—very stony soil surface

### ***General Management Considerations***

#### ***Livestock grazing***

- Droughtiness may limit the success of seedings and the choice of species for seedings.
- The bedrock in the Gwinly soil restricts the rooting depth.
- Depth to bedrock in the Gwinly soil limits construction of water impoundments.
- The clayey lower layers in the Gwinly and Mallory soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The very stony upper layer of the Mallory soil restricts the operation of ground seeding equipment.

## ***101—Gwinly-Mallory-Kettenbach complex, 30 to 60 percent south slopes***

### ***Composition***

*Gwinly and similar soils*—35 percent

*Mallory and similar soils*—25 percent

*Kettenbach and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwinly—south-facing convex backslopes; Mallory—south-facing middle backslopes; Kettenbach—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,500 to 4,000 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Mallory and Kettenbach—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
 4 to 10 inches—dark brown very cobbly silty clay loam  
 10 to 17 inches—dark yellowish brown extremely cobbly clay  
 17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam  
 8 to 11 inches—dark brown very cobbly clay loam  
 11 to 26 inches—dark reddish brown extremely cobbly clay  
 26 inches—basalt

### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Kettenbach***

0 to 8 inches—very dark brown very cobbly loam  
 8 to 16 inches—very dark grayish brown very cobbly loam  
 16 to 24 inches—dark brown very cobbly clay loam  
 24 inches—basalt

### ***Properties and Qualities of Kettenbach***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rockly soils on convex backslopes
- Rock outcrop on backslopes
- Gwin soils on convex backslopes

### ***Major Use***

Gwinly, Mallory, and Kettenbach—livestock grazing

### ***Major Management Limitations***

Gwinly, Mallory, and Kettenbach—slope, water erosion, available water capacity

Gwinly and Mallory—depth to clayey layers, shrink-swell potential, permeability

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- The clayey lower layers in the Gwinly and Mallory soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.

## ***102—Gwinly-Mallory-Kettenbach complex, 60 to 90 percent south slopes***

### ***Composition***

*Gwinly and similar soils*—35 percent

*Mallory and similar soils*—25 percent

*Kettenbach and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwinly—south-facing convex backslopes; Mallory—south-facing middle backslopes; Kettenbach—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,500 to 4,000 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Mallory and Kettenbach—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay

17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam



8 to 11 inches—dark brown very cobbly clay loam  
 11 to 26 inches—dark reddish brown extremely cobbly clay  
 26 inches—basalt

### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

### ***Typical Profile of Kettenbach***

0 to 8 inches—very dark brown very cobbly loam  
 8 to 16 inches—very dark grayish brown very cobbly loam  
 16 to 24 inches—dark brown very cobbly clay loam  
 24 inches—basalt

### ***Properties and Qualities of Kettenbach***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Rockly soils on convex backslopes
- Rock outcrop on backslopes
- Gwin soils on convex backslopes

### ***Major Use***

Gwinly, Mallory, and Kettenbach—livestock grazing

### ***Major Management Limitations***

Gwinly, Mallory, and Kettenbach—slope, water erosion, available water capacity  
 Gwinly and Mallory—depth to clayey layers, shrink-swell potential, permeability

### ***General Management Considerations***

#### **Livestock grazing**

- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The clayey lower layers in the Gwinly and Mallory soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.

### **103—Gwinly-Mallory-Rock outcrop complex, 40 to 90 percent south slopes**

#### ***Composition***

*Gwinly and similar soils*—35 percent  
*Mallory and similar soils*—25 percent  
*Rock outcrop*—25 percent  
*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Gwinly—south-facing convex backslopes; Mallory—south-facing middle backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,400 to 4,100 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Mallory—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
4 to 10 inches—dark brown very cobbly silty clay loam  
10 to 17 inches—dark yellowish brown extremely cobbly clay  
17 inches—basalt

#### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

#### ***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam  
8 to 11 inches—dark brown very cobbly clay loam  
11 to 26 inches—dark reddish brown extremely cobbly clay  
26 inches—basalt

#### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Rockly soils on convex backslopes
- Kettenbach soils on concave backslopes

### ***Major Use***

Gwinly and Mallory—livestock grazing

### ***Major Management Limitations***

Gwinly and Mallory—depth to clayey layers, shrink-swell potential, available water capacity, stability, slope

Gwinly—depth to bedrock, water erosion

Mallory—very stony soil surface

### ***General Management Considerations***

#### ***Livestock grazing***

- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Gwinly soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion on the Gwinly soil is high where there is little plant cover protecting the surface layer.

## ***104—Gwinly-Rockly complex, 2 to 15 percent slopes***

### ***Composition***

*Gwinly and similar soils*—50 percent

*Rockly and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwinly—central portion of summits; Rockly—shoulders

*Landform:* Structural benches, plateaus

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,000 to 3,400 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Mallory—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
4 to 10 inches—dark brown very cobbly silty clay loam  
10 to 17 inches—dark yellowish brown extremely cobbly clay  
17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam  
3 to 7 inches—dark brown extremely cobbly loam  
7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Kettenbach soils on concave backslopes
- Rock outcrop on shoulders
- Mallory soils in concave areas

### ***Major Use***

Gwinly and Rockly—livestock grazing

### ***Major Management Limitations***

Gwinly and Rockly—slope, depth to bedrock, available water capacity, cobbles on soil surface  
Gwinly—permeability, shrink-swell potential, depth to clayey layers  
Rockly—water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The depth to bedrock limits the construction of water impoundments.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- The clayey lower layers in the Gwinly soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The risk of soil loss from water erosion on the Rockly soil is high in areas where there is little plant cover protecting the surface layer.

## **105—Gwinly-Rockly-Rock outcrop complex, 60 to 120 percent north slopes**

### ***Composition***

*Gwinly and similar soils*—40 percent  
*Rockly and similar soils*—25 percent  
*Rock outcrop*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwinly—north-facing concave backslopes; Rockly—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,400 to 4,100 feet

*Native plants:* Gwinly—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass;  
 Rockly—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

*Slope:* Gwinly and Rockly—60 to 90 percent; Rock outcrop—60 to 120 percent

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
 4 to 10 inches—dark brown very cobbly silty clay loam  
 10 to 17 inches—dark yellowish brown extremely cobbly clay  
 17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam  
 3 to 7 inches—dark brown extremely cobbly loam  
 7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1 inch

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Rockly soils on convex backslopes

- Kettenbach soils on backslopes
- Riverwash at the base of canyon backslopes on flood plains along the Grande Ronde and Snake Rivers

### ***Major Use***

Gwinly and Rockly—livestock grazing

### ***Major Management Limitations***

Gwinly, Rockly, and Rock outcrop—slope

Gwinly and Rockly—depth to bedrock, available water capacity, stability, water erosion

Gwinly—depth to clayey layers, shrink-swell potential

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The clayey lower layers in the Gwinly soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The Rock outcrop is a physical barrier to livestock in some areas.

## ***106—Gwinly-Sopher complex, 60 to 90 percent south slopes***

### ***Composition***

*Gwinly and similar soils*—60 percent

*Sopher and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gwinly—south-facing convex middle backslopes; Sopher—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Gwinly—loess and colluvium derived from basalt; Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt

*Elevation:* 2,300 to 4,000 feet

*Native plants:* Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot; Sopher—Douglas fir, ponderosa pine, wax currant, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
 4 to 10 inches—dark brown very cobbly silty clay loam  
 10 to 17 inches—dark yellowish brown extremely cobbly clay  
 17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

### ***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles  
 0 to 2 inches—very dark grayish brown stony loam  
 2 to 8 inches—dark brown gravelly loam  
 8 to 18 inches—brown gravelly clay loam  
 18 to 24 inches—brown very gravelly clay  
 24 to 44 inches—brown very gravelly clay  
 44 inches—basalt

### ***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Mallory soils on middle backslopes
- Rock outcrop on backslopes scattered throughout
- Kettenbach soils on middle backslopes
- Gwin soils on convex backslopes

### ***Major Uses***

Gwinly—livestock grazing  
 Sopher—timber production

### ***Major Management Limitations***

Gwinly and Sopher—slope, water erosion, permeability, shrink-swell potential, depth to clayey layers  
 Gwinly—depth to bedrock, available water capacity  
 Sopher—soil compaction, equipment operability, cut and fill erosion, soil displacement, seedling mortality, plant competition, fire damage

### ***General Management Considerations***

#### **Livestock grazing**

- Site disturbance, such as construction of roads, heavy grazing by livestock or



wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Droughtiness may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Because the soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the clayey lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***107—Gwinly-Sopher-Rock outcrop complex, 60 to 90 percent north slopes***

#### ***Composition***

*Gwinly and similar soils*—55 percent

*Sopher and similar soils*—25 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Gwinly—north-facing convex backslopes; Sopher—north-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Gwinly—loess and colluvium derived from basalt; Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt

*Elevation:* 1,700 to 2,800 feet

*Native plants:* Gwinly—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass;

Sopher—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay

17 inches—basalt

***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles

0 to 2 inches—very dark grayish brown stony loam

2 to 8 inches—dark brown gravelly loam

8 to 18 inches—brown gravelly clay loam

18 to 24 inches—brown very gravelly clay

24 to 44 inches—brown very gravelly clay

44 inches—basalt

***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 10 to 20 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

***Contrasting Inclusions***

- Gwin soils on convex backslopes
- Mallory soils on middle backslopes
- Emily soils on concave backslopes

***Major Uses***

Gwinly—livestock grazing

Sopher—timber production

***Major Management Limitations***

Gwinly, Sopher, and Rock outcrop—slope

Gwinly and Sopher—slope, water erosion, permeability, shrink-swell potential, depth to clayey layers

Gwinly—depth to bedrock, available water capacity

Sopher—soil compaction, equipment operability, cut and fill erosion, soil displacement, plant competition, fire damage

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Site disturbance, such as roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Rock outcrop can make tree planting difficult.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the clay in the lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***108—Hapludolls-Endoaquolls-Endoaquents complex, 0 to 5 percent slopes***

### ***Composition***

*Hapludolls, frigid, and similar inclusions—35 percent*

*Endoaquolls, frigid, and similar inclusions—30 percent*

*Endoaquents, frigid, and similar inclusions—20 percent*

*Contrasting inclusions—15 percent*

### ***Setting***

*Landscape position:* Hapludolls—fans and low stream terraces; Endoaquolls—flood plains; Endoaquents—flood plains adjacent to streams

*Landform:* Narrow mountain valleys

*Parent material:* Hapludolls—mixed colluvium, slope alluvium, and alluvium; Endoaquolls and Endoaquents—recent alluvium

*Elevation:* 3,300 to 5,000 feet

*Native plants:* Hapludolls—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Endoaquolls—tufted hairgrass, sedge, willow, bluegrass, rush; Endoaquents—alder, redosier dogwood, sedge, rush, hairgrass, cow parsnip, sticky geranium

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—40 to 45 degrees F

Frost-free period—70 to 100 days (Hapludolls); 40 to 100 days (Endoaquolls and Endoaquents)

### ***Reference Profile of Hapludolls***

0 to 11 inches—dark reddish brown silt loam

11 to 24 inches—brown silt loam

24 to 43 inches—dark brown extremely cobbly sandy clay loam

43 to 61 inches—dark brown extremely cobbly loamy sand

### ***Properties and Qualities of Hapludolls***

*Depth to bedrock:* 60 inches or more

*Drainage class:* Somewhat poorly drained

*Depth to water table:* 2 to 3 feet in April through August

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Frequency of flooding:* Rare in April through June

*Hazard of erosion:* Slight

### ***Reference Profile of Endoaquolls***

0 to 10 inches—dark reddish brown silt loam

10 to 18 inches—very dark gray cobbly silt loam

18 to 61 inches—dark reddish brown extremely stony sandy loam

### ***Properties and Qualities of Endoaquolls***

*Depth to bedrock:* 60 inches or more

*Drainage class:* Poorly drained

*Depth to water table (apparent):* 0.5 to 1.0 foot in April through August

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Frequency of flooding:* Occasional in April through June

*Hazard of erosion:* Slight

*Potential for frost action:* High

### ***Reference Profile of Endoaquents***

0 to 8 inches—dark reddish brown gravelly loam

8 to 15 inches—dark reddish brown, mottled very gravelly loam

15 to 61 inches—dark reddish brown extremely cobbly loamy sand

### ***Properties and Qualities of Endoaquents***

*Depth to bedrock:* 60 inches or more

*Drainage class:* Somewhat poorly drained or poorly drained

*Depth to water table:* 0.5 to 1.0 foot in April through August

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Frequency of flooding:* Occasional in April through June

*Hazard of erosion:* Slight

*Potential for frost action:* Moderate or high

### ***Contrasting Inclusions***

- Riverwash on recent flood plains
- Klicker soils on adjacent south-facing toeslopes
- Tolo soils on adjacent north-facing toeslopes

### ***Major Uses***

Hapludolls—timber production

Endoaquolls and Endoaquents—riparian areas, livestock grazing

### ***Major Management Limitations***

Hapludolls, Endoaquolls, and Endoaquents—high water table, flooding, cold temperatures, seepage

Hapludolls—soil compaction, seedling mortality, windthrow, plant competition

### ***General Management Considerations***

#### **Livestock grazing**

- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm.
- A seasonal high water table increases the amount of moisture in the soils.
- The amount of available water is higher because of surface and subsurface flows from adjacent uplands.
- The risk of seepage limits construction of water impoundments.
- Seasonal ponding may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- Heavy season-long grazing in the riparian areas may decrease the abundance of plants that help to stabilize streambanks and moderate water temperatures.
- Road construction can block surface and subsurface flows.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- Wetness limits the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Seedlings are susceptible to frost damage.
- Trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may prevent reforestation.
- To protect the quantity and quality of water, a buffer zone should be maintained around riparian areas and disturbance of these areas should be minimal.

## ***109—Harl-Anatone-Rock outcrop complex, 30 to 60 percent north slopes***

### ***Composition***

*Harl and similar soils*—40 percent

*Anatone and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Harl—north-facing concave backslopes; Anatone—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Harl—volcanic ash and colluvium derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Harl—grand fir, Douglas fir, Engelmann spruce, big huckleberry, prince's pine, elk sedge, heartleaf arnica, pinegrass, western rattlesnake plantain; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Harl***

1 inch to 0—partially decomposed needles and leaves

0 to 2 inches—dark brown very gravelly silt loam

2 to 13 inches—brown very gravelly silt loam

13 to 24 inches—yellowish brown very gravelly fine sandy loam

24 to 29 inches—brown extremely gravelly silt loam

29 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Harl***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 16 to 38 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Limberjim soils on concave backslopes
- Bocker soils on convex backslopes
- Syrupcreek soils on middle backslopes

### ***Major Uses***

Harl—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Harl, Anatone, and Rock outcrop—slope

Harl and Anatone—water erosion

Harl—sheet and rill erosion, equipment operability, cut and fill erosion, soil compaction, plant competition, puddling, dustiness, soil displacement

Anatone—depth to bedrock, available water capacity, very stony soil surface, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- The upper layer is saturated following snowmelt.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.

### ***110—Harl-Anatone-Rock outcrop complex, 60 to 90 percent north slopes***

#### ***Composition***

*Harl and similar soils*—45 percent

*Anatone and similar soils*—30 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harl—north-facing concave backslopes; Anatone—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons



*Parent material:* Harl—volcanic ash over colluvium derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Harl—grand fir, Douglas fir, Engelmann spruce, big huckleberry, prince's pine, elk sedge, heartleaf arnica, pinegrass, western rattlesnake plantain; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Harl***

1 inch to 0—partially decomposed needles and leaves  
 0 to 2 inches—dark brown very gravelly silt loam  
 2 to 13 inches—brown very gravelly silt loam  
 13 to 24 inches—yellowish brown very gravelly fine sandy loam  
 24 to 29 inches—brown extremely gravelly silt loam  
 29 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Harl***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 16 to 38 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Limberjim soils on concave backslopes
- Bocker soils on convex backslopes
- Syrupcreek soils on middle backslopes

### ***Major Uses***

Harl—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Harl, Anatone, and Rock outcrop—slope

Harl and Anatone—water erosion

Harl—sheet and rill erosion, equipment operability, cut and fill erosion, soil compaction, plant competition, puddling, dustiness, soil displacement

Anatone—depth to bedrock, available water capacity, very stony soil surface, cool winter temperatures, stability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.

## ***111—Harl-Getaway association, 30 to 60 percent slopes***

### ***Composition***

*Harl and similar soils*—45 percent

*Getaway and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Harl—north-facing backslopes; Getaway—south-facing backslopes

*Landform:* Canyons

*Parent material:* Harl—volcanic ash over colluvium derived from basalt; Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Harl—grand fir, Douglas fir, Engelmann spruce, western larch, longtube

twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Getaway—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

***Typical Profile of Harl***

1 inch to 0—partially decomposed needles and leaves  
 0 to 2 inches—dark brown very gravelly silt loam  
 2 to 13 inches—brown very gravelly silt loam  
 13 to 24 inches—yellowish brown very gravelly fine sandy loam  
 24 to 29 inches—brown extremely gravelly silt loam  
 29 to 61 inches—brown extremely gravelly loam

***Properties and Qualities of Harl***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 16 to 38 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

***Typical Profile of Getaway***

1 inch to 0—needles and twigs  
 0 to 13 inches—very dark brown cobbly silt loam  
 13 to 48 inches—dark brown very cobbly silty clay loam  
 48 inches—basalt

***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Klicker soils on south-facing backslopes
- Fivebit soils on south-facing convex backslopes
- Limberjim soils on north-facing concave backslopes
- Syrupcreek soils on north-facing convex backslopes

***Major Use***

Harl and Getaway—timber production

***Major Management Limitations***

Harl and Getaway—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, plant competition, fire damage, dustiness

Harl—cut and fill erosion

Getaway—seedling mortality

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads are soft when wet.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes on the Harl soil.
- Rock fragments make tree planting difficult on the Harl soil.
- Unsurfaced roads and skid trails on the Harl soil are very dusty when dry because of the surface volcanic ash.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Unsurfaced roads and skid trails on the Getaway soil are dusty when dry.

### ***112—Harl-Limberjim-Rock outcrop complex, 60 to 90 percent north slopes***

#### ***Composition***

*Harl and similar soils*—50 percent

*Limberjim and similar soils*—25 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harl—north-facing concave backslopes; Limberjim—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Harl—volcanic ash over colluvium derived from basalt; Limberjim—volcanic ash over colluvium and residuum derived from basalt or andesitic tuff breccia

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Harl and Limberjim—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harl***

1 inch to 0—partially decomposed needles and leaves

0 to 2 inches—dark brown very gravelly silt loam

2 to 13 inches—brown very gravelly silt loam

13 to 24 inches—yellowish brown very gravelly fine sandy loam  
 24 to 29 inches—brown extremely gravelly silt loam  
 29 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Harl***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 16 to 38 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* Low

### ***Typical Profile of Limberjim***

1 inch to 0—partially decomposed twigs and small branches  
 0 to 5 inches—dark yellowish brown silt loam  
 5 to 15 inches—dark yellowish brown silt loam  
 15 to 20 inches—dark yellowish brown gravelly silt loam  
 20 to 41 inches—dark yellowish brown very cobbly silt loam  
 41 inches—basalt

### ***Properties and Qualities of Limberjim***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 28 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 9 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Syrupcreek soils on convex backslopes
- Anatone soils on backslopes

### ***Major Use***

Harl and Limberjim—timber production

### ***Major Management Limitations***

Harl, Limberjim, and Rock outcrop—slope  
 Harl and Limberjim—water erosion, cut and fill erosion, equipment operability, soil compaction, soil displacement, plant competition  
 Harl—planting hazard

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.

- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.
- Rock fragments make tree planting difficult on the Harl soil.

### **113—Harlow-Bocker complex, 2 to 15 percent slopes**

#### ***Composition***

*Harlow and similar soils*—60 percent

*Bocker and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harlow—fault-tilted summits; Bocker—shoulders

*Landform:* Structural benches, plateaus

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Harlow—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

#### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

#### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Rock outcrop scattered on summits and along shoulders
- Parsnip soils scattered on summits
- Zumwalt soils scattered on summits

### ***Major Use***

Harlow and Bocker—livestock grazing

### ***Major Management Limitations***

Harlow and Bocker—available water capacity, depth to bedrock, water erosion

Harlow—stones on soil surface, permeability, shrink-swell potential, depth to clayey layers

Bocker—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- The upper layer is saturated following snowmelt because of the depth to bedrock.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.

## ***114—Harlow-Bocker complex, 15 to 30 percent south slopes***

### ***Composition***

Harlow and similar soils—60 percent

Bocker and similar soils—25 percent

Contrasting inclusions—15 percent

### ***Setting***

*Landscape position:* Harlow—south-facing footslopes and concave backslopes;

Bocker—south-facing shoulders and convex upper backslopes

*Landform:* Hills

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days



### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
4 to 8 inches—very dark grayish brown very cobbly clay loam  
8 to 16 inches—dark brown extremely cobbly clay  
16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam  
2 to 7 inches—dark brown very cobbly silt loam  
7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 0.5 inch  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rock outcrop on shoulders and convex backslopes
- Snell soils on footslopes and concave backslopes
- Powwatka soils on footslopes

### ***Major Use***

Harlow and Bocker—livestock grazing

### ***Major Management Limitations***

Harlow and Bocker—water erosion, available water capacity, depth to bedrock  
Harlow—stones on soil surface, permeability, shrink-swell potential, depth to clayey layers  
Bocker—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- The upper layer is saturated following snowmelt because of the depth to bedrock.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- The low annual precipitation limits production and seasonal availability of forage.

### **115—Harlow-Bocker complex, 30 to 60 percent south slopes**

#### ***Composition***

*Harlow and similar soils*—45 percent

*Bocker and similar soils*—40 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harlow—south-facing concave backslopes; Bocker—south-facing convex backslopes

*Landform:* Hills

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Harlow—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

#### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

#### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Powwatka soils on footslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Snell soils on middle backslopes
- Klicker soils near the upper elevations on concave backslopes or in drainageways

### ***Major Use***

Harlow and Bocker—livestock grazing

### ***Major Management Limitations***

Harlow and Bocker—slope, water erosion, available water capacity, depth to bedrock

Harlow—stones on soil surface, permeability, shrink-swell potential, depth to clayey layers

Bocker—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Livestock tend to graze the easily accessible forage on the gentle slopes before they graze the forage on the steeper side slopes.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- The low annual precipitation limits production and seasonal availability of forage.

## ***116—Harlow-Bocker complex, moist, 2 to 15 percent slopes***

### ***Composition***

*Harlow and similar soils*—50 percent

*Bocker and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Harlow—convex summits; Bocker—shoulders

*Landform:* Structural benches, plateaus

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Harlow—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
 4 to 8 inches—dark grayish brown very cobbly clay loam  
 8 to 16 inches—dark brown extremely cobbly clay  
 16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam  
 2 to 7 inches—dark brown very cobbly silt loam  
 7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Anatone soils on shoulders and other convex positions
- Rock outcrop on shoulders

### ***Major Use***

Harlow and Bocker—livestock grazing

### ***Major Management Limitations***

Harlow and Bocker—available water capacity, depth to bedrock, water erosion  
 Harlow—stones on soil surface, permeability, shrink-swell potential, depth to clayey layers  
 Bocker—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- Depth to bedrock limits construction of water impoundments.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Droughtiness may limit the success of seedings and the choice of species for seedings.

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- The upper layer of the Harlow soil is saturated following snowmelt.
- Cool soil temperatures and a short growing season limit the period of plant growth.

### **117—Harlow-Bocker-Rock outcrop complex, 60 to 90 percent south slopes**

#### ***Composition***

*Harlow and similar soils*—40 percent

*Bocker and similar soils*—30 percent

*Rock outcrop*—20 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Harlow—south-facing backslopes between areas of Rock outcrop and footslopes; Bocker—south-facing backslopes adjacent to areas of Rock outcrop; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Hills

*Parent material:* Harlow and Bocker—loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

#### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Snell soils on concave backslopes
- Powwatka soils on footslopes

### ***Major Use***

Harlow and Bocker—livestock grazing

### ***Major Management Limitations***

Harlow, Bocker, and Rock outcrop—slope

Harlow and Bocker—water erosion, available water capacity, depth to bedrock

Harlow—stones on soil surface, permeability, shrink-swell potential, depth to clayey layers

Bocker—cobbles on soil surface

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- The low annual precipitation limits production and seasonal availability of forage.

## ***118—Harlow-Imnaha-Rock outcrop complex, moist, 2 to 15 percent slopes***

### ***Composition***

*Harlow and similar soils*—40 percent

*Imnaha and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Harlow—along the margins of summits and other convex positions; Imnaha—central portion of summits; Rock outcrop (horizontal layers of exposed bedrock)—shoulders

*Landform:* Structural benches, plateaus

*Parent material:* Harlow—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Harlow and Imnaha—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Bocker soils along the margins of summits
- Snell soils in the central portions of summits

### ***Major Use***

Harlow and Imnaha—livestock grazing

### ***Major Management Limitations***

Harlow, Imnaha, and Rock outcrop—cool winter temperatures

Harlow—depth to clayey layers, depth to bedrock, permeability, shrink-swell potential, water erosion, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings



- and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
  - The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
  - The bedrock in the Harlow soil restricts the rooting depth.
  - The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
  - Depth to bedrock in the Harlow soil limits construction of water impoundments.
  - The upper layer in the Harlow soil is saturated following snowmelt.
  - Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
  - The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
  - Droughtiness of the Harlow soil may limit the success of seedings and the choice of species for seedings.
  - Seeding areas of the Harlow soil that are in poor condition is difficult because of the soil depth or stoniness, or both.

### **119—Harlow-Imnaha-Rock outcrop complex, moist, 30 to 60 percent south slopes**

#### ***Composition***

*Harlow and similar soils*—40 percent

*Imnaha and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harlow—south-facing convex backslopes; Imnaha—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Harlow—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Imnaha—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Bocker soils on concave backslopes and adjacent to areas of Rock outcrop
- Snell soils on middle backslopes

### ***Major Use***

Harlow and Imnaha—livestock grazing

### ***Major Management Limitations***

Harlow, Imnaha, and Rock outcrop—slope

Harlow and Imnaha—cool winter temperatures, water erosion

Harlow—depth to clayey layers, depth to bedrock, permeability, shrink-swell potential, very stony soil surface, available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Harlow soil restricts the rooting depth.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Cool soil temperatures and a short growing season limit the period of plant growth.

## ***120—Harlow-Imnaha-Rock outcrop complex, moist, 60 to 90 percent south slopes***

### ***Composition***

*Harlow and similar soils*—40 percent

*Imnaha and similar soils*—35 percent

*Rock outcrop*—10 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Harlow—south-facing convex backslopes; Imnaha—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Harlow—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Imnaha—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes and adjacent to areas of Rock outcrop
- Snell soils on middle backslopes

### ***Major Use***

Harlow and Imnaha—livestock grazing

### ***Major Management Limitations***

Harlow, Imnaha, and Rock outcrop—cool winter temperatures, water erosion, slope  
Harlow—depth to clayey layers, depth to bedrock, shrink-swell potential, very stony  
soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- Cool soil temperatures and a short growing season limit the period of plant growth.

## ***121—Harlow-Klicker complex, 30 to 60 percent south slopes***

### ***Composition***

*Harlow and similar soils*—50 percent

*Klicker and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Harlow—south-facing convex backslopes; Klicker—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Harlow—loess and colluvium derived from basalt; Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Klicker—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Kamela soils on concave backslopes

### ***Major Uses***

Harlow—livestock grazing

Klicker—timber production

### ***Major Management Limitations***

Harlow and Klicker—slope, water erosion, depth to bedrock, available water capacity, permeability, stones on soil surface

Harlow—shrink-swell potential, depth to clayey layers

Klicker—soil compaction, equipment operability, soil displacement, seedling mortality, plant competition, fire damage, windthrow

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The bedrock restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- Cool soil temperatures and a short growing season limit the period of plant growth.

**Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## **122—Harlow-Klicker complex, 60 to 90 percent south slopes**

**Composition**

*Harlow and similar soils*—50 percent

*Klicker and similar soils*—35 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position:* Harlow—south-facing convex backslopes; Klicker—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Harlow—loess and colluvium derived from basalt; Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass; Klicker—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile of Harlow**

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

**Properties and Qualities of Harlow**

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Kamela soils on concave backslopes
- Bocker soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes

### ***Major Uses***

Harlow—livestock grazing

Klicker—timber production

### ***Major Management Limitations***

Harlow and Klicker—slope, water erosion, depth to bedrock, available water capacity, permeability, stones on soil surface

Harlow—shrink-swell potential, depth to clayey layers

Klicker—droughtiness, equipment operability, soil compaction, soil displacement, cut and fill erosion, seedling mortality, plant competition, fire damage

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.



- Special precautions may be needed to control soil loss following activities that expose the soil.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of slightly clayey lower layers in the soil. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***123—Harlow-Snell-Imnaha complex, moist, 2 to 15 percent slopes***

#### ***Composition***

*Harlow and similar soils*—35 percent

*Snell and similar soils*—25 percent

*Imnaha and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harlow—shoulders and margins of summits; Snell and Imnaha—central portion of summits

*Landform:* Structural benches, plateaus

*Parent material:* Harlow and Snell—loess and colluvium derived from basalt; Imnaha—volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Bocker soils on shoulders
- Rock outcrop on shoulders

### ***Major Use***

Harlow, Snell, and Imnaha—livestock grazing

### ***Major Management Limitations***

Harlow, Snell, and Imnaha—cool winter temperatures

Harlow and Snell—depth to clayey layers, shrink-swell potential, very stony soil surface, available water capacity

Harlow—depth to bedrock, permeability, water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- The clayey lower layers in the Harlow and Snell soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Livestock tend to graze in the less stony areas.

- The very stony upper layer of the Harlow and Snell soils restricts the operation of ground seeding equipment.
- Droughtiness of the Harlow and Snell soils may limit the success of seedings and the choice of species for seedings.
- Seeding areas of the Harlow and Snell soils that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- The depth to bedrock in the Harlow soil limits construction of water impoundments.
- The upper layer of the Harlow soil is saturated following snowmelt.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.

### ***124—Harlow-Snell-Imnaha complex, moist, 15 to 30 percent south slopes***

#### ***Composition***

*Harlow and similar soils*—35 percent

*Snell and similar soils*—25 percent

*Imnaha and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harlow—south-facing shoulders and convex backslopes; Snell—south-facing middle backslopes; Imnaha—south-facing footslopes and concave backslopes

*Landform:* Canyons

*Parent material:* Harlow and Snell—loess and colluvium derived from basalt; Imnaha—volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Snell and Imnaha—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam  
 4 to 9 inches—very dark brown stony clay loam  
 9 to 18 inches—dark brown very stony clay loam  
 18 to 24 inches—dark brown extremely stony clay loam  
 24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam  
 5 to 17 inches—very dark gray gravelly silt loam  
 17 to 21 inches—very dark grayish brown very gravelly silt loam  
 21 to 24 inches—dark brown very gravelly loam  
 24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Bocker soils on shoulders and the upper part of backslopes near exposures of bedrock
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Klicker soils on footslopes or near drainageways

### ***Major Use***

Harlow, Snell, and Imnaha—livestock grazing

### ***Major Management Limitations***

Harlow, Snell, and Imnaha—cool winter temperatures, water erosion, dry south-facing slopes  
 Harlow and Snell—depth to clayey layers, shrink-swell potential, very stony soil surface, available water capacity, permeability  
 Harlow—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The growing season on the warmer south-facing slopes starts earlier and ends sooner than that on north-facing slopes.
- The clayey lower layers in the Harlow and Snell soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Livestock tend to graze in the less stony areas.

- The very stony upper layer of the Harlow and Snell soils restricts the operation of ground seeding equipment.
- Droughtiness of the Harlow and Snell soils may limit the success of seedings and the choice of species for seedings.
- Seeding areas of the Harlow and Snell soils that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- The depth to bedrock in the Harlow soil limits construction of water impoundments.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- Cool soil temperatures and a short growing season limit the period of plant growth.

### ***125—Harlow-Snell-Imnaha complex, moist, 30 to 60 percent south slopes***

#### ***Composition***

*Harlow and similar soils*—35 percent

*Snell and similar soils*—25 percent

*Imnaha and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harlow—south-facing convex backslopes; Snell—south-facing middle backslopes; Imnaha—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Harlow and Snell—loess and colluvium derived from basalt; Imnaha—volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Snell and Imnaha—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam  
 4 to 9 inches—very dark brown stony clay loam  
 9 to 18 inches—dark brown very stony clay loam  
 18 to 24 inches—dark brown extremely stony clay loam  
 24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam  
 5 to 17 inches—very dark gray gravelly silt loam  
 17 to 21 inches—very dark grayish brown very gravelly silt loam  
 21 to 24 inches—dark brown very gravelly loam  
 24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Bocker soils on the upper backslopes near exposures of bedrock
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Klicker soils on concave backslopes or near drainageways

### ***Major Use***

Harlow, Snell, and Imnaha—livestock grazing

### ***Major Management Limitations***

Harlow, Snell, and Imnaha—cool winter temperatures, slope, water erosion, dry south-facing slopes  
 Harlow and Snell—depth to clayey layers, shrink-swell potential, very stony soil surface, available water capacity  
 Harlow—depth to bedrock, permeability, water erosion

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The growing season on the warmer south-facing slopes starts earlier and ends sooner than that on north-facing slopes.
- The clayey lower layers in the Harlow and Snell soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The bedrock in the Harlow soil restricts the rooting depth.

- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- Cool soil temperatures and a short growing season limit the period of plant growth.

### ***126—Harlow-Snell-Rock outcrop complex, 40 to 90 percent south slopes***

#### ***Composition***

*Harlow and similar soils*—35 percent

*Snell and similar soils*—25 percent

*Rock outcrop*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Harlow—south-facing convex backslopes; Snell—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Harlow and Snell—loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Snell—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony clay loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

#### ***Typical Profile of Snell***

0 to 4 inches—black very stony clay loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

#### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches



*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker and Anatone soils on convex backslopes
- Imnaha soils on concave backslopes

### ***Major Use***

Harlow and Snell—livestock grazing

### ***Major Management Limitations***

Harlow, Snell, and Rock outcrop—slope  
 Harlow and Snell—water erosion, stones on soil surface, shrink-swell potential, available water capacity, permeability, depth to clayey layers  
 Harlow—depth to bedrock

### ***General Management Considerations***

#### ***Livestock grazing***

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Slope restricts the operation of ground seeding equipment.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Cool soil temperatures and a short growing season limit the period of plant growth.

## ***127—Harlow-Tamarackcanyon-Linecreek complex, 60 to 90 percent south slopes***

### ***Composition***

*Harlow and similar soils*—40 percent  
*Tamarackcanyon and similar soils*—25 percent  
*Linecreek and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Harlow and Tamarackcanyon—south-facing convex backslopes; Linecreek—south-facing concave backslopes  
*Landform:* Canyons  
*Parent material:* Harlow—loess and colluvium derived from basalt; Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt; Linecreek—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part  
*Elevation:* 4,000 to 6,200 feet  
*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot,

buckwheat; Tamarackcanyon and Linecreek—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam

9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam

22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam

35 to 50 inches—yellowish brown extremely cobbly fine sandy loam

50 to 61 inches—brown extremely gravelly loam

***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 11 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Kamela soils on convex backslopes
- Anatone soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Tolo soils on concave lower backslopes

### ***Major Uses***

Harlow—livestock grazing

Tamarackcanyon and Linecreek—timber production

### ***Major Management Limitations***

Harlow, Tamarackcanyon, and Linecreek—slope, water erosion

Harlow and Tamarackcanyon—depth to clayey layers, permeability, shrink-swell potential, available water capacity

Harlow—depth to bedrock, stones on soil surface

Tamarackcanyon and Linecreek—equipment operability, cut and fill erosion, soil displacement, plant competition, dustiness, fire damage

Tamarackcanyon—soil compaction, depth to bedrock, windthrow

Linecreek—seedling mortality

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer in the soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers in the soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the Tamarackcanyon soil, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Because the Linecreek soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees on the Tamarackcanyon soil may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads on hillsides in areas of the Tamarackcanyon soil are sticky when wet because of the clay in the lower layers.

- Unsurfaced roads on hillsides in areas of the Linecreek soil are firm when wet.
- Cobbles on the Linecreek soil make tree planting difficult.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## **128—Harlow-Tamarackcanyon-Olot complex, 30 to 60 percent south slopes**

### **Composition**

*Harlow and similar soils*—40 percent

*Tamarackcanyon and similar soils*—25 percent

*Olot and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position:* Harlow—south-facing backslopes; Tamarackcanyon—south-facing convex backslopes; Olot—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Harlow—loess and colluvium derived from basalt; Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt; Olot—volcanic ash over colluvium and residuum derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Tamarackcanyon—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Olot—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### **Typical Profile of Harlow**

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### **Properties and Qualities of Harlow**

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### **Typical Profile of Tamarackcanyon**

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tolo soils on concave backslopes
- Anatone soils on backslopes
- Klicker soils on convex backslopes

### ***Major Uses***

Harlow—livestock grazing

Tamarackcanyon and Olot—timber production

### ***Major Management Limitations***

Harlow, Tamarackcanyon, and Olot—slope, water erosion, depth to bedrock

Harlow and Tamarackcanyon—depth to clayey layers, permeability, shrink-swell potential, available water capacity

Harlow—stones on soil surface

Tamarackcanyon and Olot—soil compaction, equipment operability, dustiness, soil displacement, plant competition, windthrow

Tamarackcanyon—puddling, fire damage

Olot—seedling mortality

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers in the soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the Olot soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity on the Tamarackcanyon soil may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides in areas of the Tamarackcanyon soil are sticky when wet because of the clay in the lower layers.
- Unsurfaced roads on hillsides in areas of the Olot soil are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***129—Harlow-Threebuck complex, 30 to 60 percent north slopes***

#### ***Composition***

*Harlow and similar soils—50 percent*

*Threebuck and similar soils—35 percent*

*Contrasting inclusions—15 percent*

#### ***Setting***

*Landscape position:* Harlow—north-facing convex backslopes; Threebuck—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Harlow—loess and colluvium derived from basalt; Threebuck—volcanic ash over clayey colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Threebuck—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
 4 to 8 inches—very dark grayish brown very cobbly clay loam  
 8 to 16 inches—dark brown extremely cobbly clay  
 16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Threebuck***

1 inch to 0—slightly decomposed twigs, needles, and moss  
 0 to 4 inches—very dark grayish brown loam  
 4 to 14 inches—brown cobbly loam  
 14 to 25 inches—brown very stony clay  
 25 to 36 inches—brown very gravelly clay  
 36 to 47 inches—dark brown gravelly clay  
 47 inches—basalt

### ***Properties and Qualities of Threebuck***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches  
*Depth to claypan:* 14 to 22 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate in the upper part and slow in the lower part  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High in the claypan

### ***Contrasting Inclusions***

- Tolo soils on lower backslopes
- Snell soils on middle backslopes
- Tamarackcanyon soils on middle backslopes

### ***Major Uses***

Harlow—livestock grazing  
 Threebuck—timber production

### ***Major Management Limitations***

Harlow and Threebuck—slope, permeability, shrink-swell potential, water erosion  
 Harlow—available water capacity, depth to bedrock, depth to clayey layers  
 Threebuck—soil compaction, depth to claypan, equipment operability, soil displacement, puddling, dustiness, plant competition, fire damage

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- The slope restricts the operation of ground seeding equipment.



- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers in the soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Unsurfaced roads on hillsides are sticky when wet because of the claypan.
- Unsurfaced roads are very dusty when dry because of the surface volcanic ash.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.

### **130—Hershal silt loam, 0 to 2 percent slopes**

#### **Composition**

*Hershal and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position*: Slightly concave areas

*Landform*: Flood plains

*Parent material*: Stratified mixed alluvium

*Elevation*: 2,700 to 3,400 feet

*Native plants*: Tufted hairgrass, sedge, rush, bluegrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

#### **Typical Profile**

0 to 4 inches—very dark brown, mottled silt loam

4 to 10 inches—very dark gray, mottled silt loam

10 to 24 inches—very dark gray very fine sandy loam

24 to 60 inches—multicolored very gravelly loamy sand

#### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Depth to very gravelly sandy layer*: 20 to 30 inches

*Drainage class*: Poorly drained

*Depth to water table (apparent)*: 0.5 to 1.5 feet in March through June

*Permeability*: Moderate in the upper part and very rapid in the lower part

*Available water capacity*: About 6 inches

*Frequency of flooding*: Occasional in March through June

*Hazard of erosion*: Slight

### ***Contrasting Inclusions***

- Veazie and Voats soils on gentle rises
- Riverwash in or adjacent to streams
- Balm and Catherine soils in depressions
- Langrell and Snow soils on stream terraces

### ***Major Use***

Hay and pasture

### ***Major Management Limitations***

High water table, permeability, flooding in spring, depth to very gravelly sandy layer

### ***General Management Considerations***

#### **Hay and pasture**

- Wetness restricts production to shallow-rooted, water-tolerant plants.
- Periodic flooding and seasonal wetness limit forage production to water-tolerant plants.
- The very rapid permeability increases the risk of deep percolation of irrigation water below the root zone.
- The contrasting very gravelly sandy layer at a depth of 20 to 30 inches restricts the growth of deep-rooted plants.
- Wetness limits the choice of adapted plants and increases the risk of winterkill due to frost action.
- The risk of seepage limits construction of water impoundments.

## ***131—Hershal-Voats complex, 0 to 2 percent slopes***

### ***Composition***

*Hershal and similar soils*—50 percent

*Voats and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Hershal—slightly concave and level areas; Voats—gentle convex rises

*Landform:* Flood plains

*Parent material:* Stratified mixed alluvium

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Hershal—tufted hairgrass, sedge, rush, bluegrass; Voats—willow, basin wildrye, cottonwood, alder, sedge, hawthorn, rose, rush

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Hershal***

0 to 4 inches—very dark brown, mottled silt loam

4 to 10 inches—very dark gray, mottled silt loam

10 to 24 inches—very dark gray very fine sandy loam

24 to 60 inches—multicolored very gravelly loamy sand

### ***Properties and Qualities of Hershal***

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly sandy layer:* 20 to 30 inches

*Drainage class:* Poorly drained

*Depth to water table (apparent):* 0.5 to 1.5 feet in March through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 6 inches

*Frequency of flooding:* Occasional in March through June

*Hazard of erosion:* Slight

### ***Typical Profile of Voats***

0 to 15 inches—very dark brown fine sandy loam

15 to 23 inches—very dark brown very cobbly loamy sand

23 to 60 inches—very dark grayish brown very cobbly sand

### ***Properties and Qualities of Voats***

*Depth to bedrock:* More than 60 inches

*Depth to very cobbly sandy layers:* 10 to 20 inches

*Drainage class:* Well drained

*Depth to water table (apparent):* 3.5 to 6.0 feet in January through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 3 inches

*Frequency of flooding:* Occasional in March through June

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Veazie soils on adjacent slightly higher flood plains
- Riverwash in or adjacent to streams
- Balm and Catherine soils in adjacent slightly higher concave areas

### ***Major Use***

Hershal and Voats—hay and pasture

### ***Major Management Limitations***

Hershal and Voats—flooding, permeability

Hershal—high water table, depth to very gravelly sandy layer

Voats—depth to very cobbly sandy layers, available water capacity

### ***Use and Management***

#### **Hay and pasture**

- The very rapid permeability of the soils increases the risk of deep percolation of irrigation water below the root zone.
- The growth of deep-rooted plants is restricted by the contrasting very gravelly sandy layer in the Hershal soil and the contrasting very cobbly sandy layers in the Voats soil.
- The seepage potential limits construction of water impoundments.
- Wetness of the Hershal soil restricts production to shallow-rooted, water-tolerant plants.
- Periodic flooding and seasonal wetness of the Hershal soil limits forage production to water-tolerant plants.
- Because of the high potential for frost action in the Hershal soil, there is a risk of winterkill and seedling damage.
- Wetness of the Hershal soil limits the choice of adapted plants and increases the risk of winterkill due to frost action.
- Because the Voats soil is droughty, irrigation water must be carefully managed to avoid crop stress and a subsequent decrease in production.

- The available moisture in the Voats soil limits production to drought-tolerant crops.

### **132—Hershal-Voats-Veazie complex, 0 to 2 percent slopes**

#### ***Composition***

*Hershal and similar soils*—35 percent

*Voats and similar soils*—30 percent

*Veazie and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Hershal—slightly concave or level areas; Voats—convex rises in the higher areas; Veazie—gentle rises in the lower areas

*Landform:* Flood plains

*Parent material:* Stratified mixed alluvium

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Hershal—tufted hairgrass, sedge, rush, bluegrass; Voats and Veazie—willow, basin wildrye, cottonwood, alder, sedge, hawthorn, rose, rush

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile of Hershal***

0 to 4 inches—very dark brown, mottled silt loam

4 to 10 inches—very dark gray, mottled silt loam

10 to 24 inches—very dark gray very fine sandy loam

24 to 60 inches—multicolored very gravelly loamy sand

#### ***Properties and Qualities of Hershal***

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly sandy layer:* 20 to 30 inches

*Drainage class:* Poorly drained

*Depth to water table (apparent):* 0.5 to 1.5 feet in March through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 6 inches

*Frequency of flooding:* Occasional in March through June

*Hazard of erosion:* Slight

#### ***Typical Profile of Voats***

0 to 15 inches—very dark brown fine sandy loam

15 to 23 inches—very dark brown very cobbly loamy sand

23 to 60 inches—very dark grayish brown very cobbly sand

#### ***Properties and Qualities of Voats***

*Depth to bedrock:* More than 60 inches

*Depth to very cobbly sandy layers:* 10 to 20 inches

*Drainage class:* Well drained

*Depth to water table (apparent):* 3.5 to 6.0 feet in January through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 3 inches

*Frequency of flooding:* Occasional in March through June

*Hazard of erosion:* Slight

### ***Typical Profile of Veazie***

0 to 19 inches—black loam  
 19 to 28 inches—very dark brown loam  
 28 to 34 inches—dark brown very gravelly loamy sand  
 34 to 60 inches—dark brown very gravelly sand

### ***Properties and Qualities of Veazie***

*Depth to bedrock:* More than 60 inches  
*Depth to very gravelly sandy layers:* 20 to 30 inches  
*Drainage class:* Well drained  
*Depth to water table (apparent):* 3.5 to 6.0 feet in January through June  
*Permeability:* Moderate in the upper part and very rapid in the lower part  
*Available water capacity:* About 6 inches  
*Frequency of flooding:* Occasional in March through June  
*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Riverwash on flood plains in or adjacent to streams
- Balm and Catherine soils on adjacent slightly higher flood plains

### ***Major Use***

Hershal, Voats, and Veazie—hay and pasture

### ***Major Management Limitations***

Hershal, Voats, and Veazie—flooding, permeability  
 Hershal—high water table, depth to very gravelly sandy layer  
 Voats—depth to very cobbly sandy layers, available water capacity  
 Veazie—depth to very gravelly sandy layers

### ***General Management Considerations***

#### ***Hay and pasture***

- The very rapid permeability increases the risk of deep percolation of irrigation water below the root zone.
- The contrasting very gravelly and very cobbly sandy layers restrict the growth of deep-rooted plants.
- The seepage potential limits construction of water impoundments.
- Wetness of the Hershal soil restricts production to shallow-rooted, water-tolerant plants.
- Periodic flooding and seasonal wetness of the Hershal soil limits forage production to water-tolerant plants.
- Wetness of the Hershal soil limits the choice of adapted plants and increases the risk of winterkill due to frost action.
- Because the Voats soil is droughty, irrigation water must be carefully managed to avoid crop stress and a subsequent decrease in production.
- The available moisture in the Voats soil limits production to drought-tolerant crops.

## ***133—Howmeadows-Wilkins complex, 0 to 3 percent slopes***

### ***Composition***

*Howmeadows and similar soils*—50 percent  
*Wilkins and similar soils*—35 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Howmeadows—old meander channels or drainageways;  
Wilkins—slightly higher depressions along the edges of meadows adjacent to areas of forestland on summits

*Landform:* Plateaus

*Parent material:* Howmeadows—mixed loess and a minor amount of volcanic ash over clayey colluvium and residuum derived from basalt; Wilkins—loess mixed with a minor amount of volcanic ash over alluvium derived from basalt

*Elevation:* 3,900 to 4,100 feet

*Native plants:* Howmeadows—tufted hairgrass, sedge, rush, spikerush; Wilkins—tufted hairgrass, sedge, willow, bluegrass, rush

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Howmeadows***

0 to 7 inches—very dark gray silty clay loam  
7 to 10 inches—dark grayish brown silty clay loam  
10 to 21 inches—grayish brown, mottled silty clay  
21 to 26 inches—light olive brown gravelly clay  
26 inches—basalt

### ***Properties and Qualities of Howmeadows***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 6 to 12 inches

*Drainage class:* Poorly drained

*Depth to water table (perched):* 0.5 to 1.0 foot in March through June

*Permeability:* Very slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* High

*Potential for frost action:* High

### ***Typical Profile of Wilkins***

0 to 10 inches—black silt loam  
10 to 19 inches—very dark grayish brown, mottled silt loam  
19 to 23 inches—grayish brown, mottled silt loam  
23 to 25 inches—grayish brown, mottled silt loam  
25 to 32 inches—dark brown silty clay  
32 to 52 inches—brown silty clay  
52 to 70 inches—light olive brown, mottled loam  
70 to 76 inches—light olive brown, mottled gravelly clay loam

### ***Properties and Qualities of Wilkins***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 15 to 30 inches

*Drainage class:* Somewhat poorly drained

*Depth to water table (perched):* 1.0 to 1.5 feet in February through June

*Permeability:* Very slow

*Available water capacity:* About 13 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* High  
*Potential for frost action:* High

### ***Contrasting Inclusions***

- Sherod soils in depressions of summits
- Syrupcreek soils on adjacent shoulders

### ***Major Use***

Howmeadows and Wilkins—livestock grazing

### ***Major Management Limitations***

Howmeadows and Wilkins—permeability, shrink-swell potential, cool winter temperatures, high water table  
 Howmeadows—depth to clayey layers, frost heaving, available water capacity  
 Wilkins—depth to claypan

### ***General Management Considerations***

#### ***Livestock grazing***

- Seasonal wetness may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- The seasonal high water table increases the amount of moisture in the soils.
- The claypan in the Wilkins soil restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- Because of the high potential for frost action, there is a risk of winterkill and seedling damage.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm.
- Droughtiness of the Howmeadows soil may limit the success of seedings and the choice of species for seedings.
- Road construction can block surface and subsurface flows.

## ***134—Hurwal silt loam, 2 to 8 percent slopes***

### ***Composition***

*Hurwal and similar soils*—90 percent  
*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Footslopes, drainageways of summits

*Landform:* Hills

*Parent material:* Loess with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Basin wildrye, Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 18 inches—very dark grayish brown silt loam

18 to 27 inches—dark brown silty clay loam



27 to 56 inches—dark yellowish brown silty clay loam

56 to 60 inches—dark yellowish brown silt loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 11 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Moderate

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Powwatka soils on shoulders of summits
- Topper soils scattered throughout on summits

### ***Major Uses***

Cropland (fig. 13), hay and pasture, livestock grazing, homesites

### ***Major Management Limitations***

Permeability, shrink-swell potential, frost heaving

### ***General Management Considerations***

#### **Cropland and hay and pasture**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.



**Figure 13.—Nonirrigated wheat in an area of Hurwal silt loam, 2 to 8 percent slopes, on footslopes of hills. This area is north of the town of Enterprise.**

- Because of the slope, flood irrigation systems for row crops may result in soil losses from erosion.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- The restricted permeability of the lower layers may make special design of absorption lines necessary.
- Unsurfaced roads are dusty when dry.

### ***135—Hurwal silt loam, 8 to 15 percent slopes***

#### ***Composition***

*Hurwal and similar soils*—90 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position*: Typically north-facing gentle backslopes and drainageways of summits

*Landform*: Hills

*Parent material*: Loess with an influence of volcanic ash in the upper part

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Basin wildrye, Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 18 inches—very dark grayish brown silt loam

18 to 27 inches—dark brown silty clay loam

27 to 56 inches—dark yellowish brown silty clay loam

56 to 60 inches—dark yellowish brown silt loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Thickness of volcanic ash influence*: Extends to a depth of 12 to 20 inches

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: About 11 inches

*Hazard of erosion*: Moderate

*Shrink-swell potential:* Moderate

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Powwatka soils on shoulders
- Topper soils scattered throughout on backslopes and in drainageways of summits

### ***Major Uses***

Cropland, hay and pasture, livestock grazing, homesites

### ***Major Management Limitations***

Water erosion, permeability, frost heaving, shrink-swell potential

### ***Use and Management***

#### **Cropland and hay and pasture**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- Because of the slope, flood irrigation systems for row crops may result in soil losses from erosion.
- Soil erosion as a result of snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- The restricted permeability of the lower layers and the steepness of slope may make special design of absorption lines necessary.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of buildings and access roads necessary.
- Unsurfaced roads are dusty when dry.

## ***136—Hurwal silt loam, 15 to 30 percent north slopes***

### ***Composition***

*Hurwal, deep, and similar soils—*85 percent

*Contrasting inclusions—*15 percent

### ***Setting***

*Landscape position:* North-facing concave backslopes

*Landform:* Hills

*Parent material:* Loess with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass, chokecherry, snowberry

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 18 inches—very dark grayish brown silt loam

18 to 27 inches—dark brown silty clay loam

27 to 56 inches—dark yellowish brown silty clay loam

56 to 58 inches—dark yellowish brown silt loam

58 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Parsnip soils on shoulders and convex backslopes
- Powwatka soils on middle backslopes
- Topper soils on footslopes and concave backslopes

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Water erosion, permeability

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## ***137—Hurwal silt loam, 30 to 60 percent north slopes***

### ***Composition***

*Hurwal, deep, and similar soils—*85 percent

*Contrasting inclusions—*15 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Hills

*Parent material:* Loess with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass, chokecherry, snowberry

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 18 inches—very dark grayish brown silt loam

18 to 27 inches—dark brown silty clay loam

27 to 56 inches—dark yellowish brown silty clay loam

56 to 58 inches—dark yellowish brown silt loam

58 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Parsnip soils on convex backslopes
- Powwatka soils on middle backslopes
- Topper soils on concave backslopes

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Slope, water erosion, permeability

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

## ***138—Hurwal silt loam, moist, 2 to 8 percent slopes***

### ***Composition***

*Hurwal and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Footslopes

*Landform:* Hills

*Parent material:* Loess with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 18 inches—very dark grayish brown silt loam

18 to 27 inches—dark brown silty clay loam

27 to 56 inches—dark yellowish brown silty clay loam

56 to 60 inches—dark yellowish brown silt loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 11 inches

*Hazard of erosion:* Slight

*Potential frost action:* Moderate

*Shrink-swell potential:* Moderate

### ***Contrasting Inclusions***

- Rondowa soils on outwash fans
- Minam soils at the base of gentle slopes of alluvial fans

### ***Major Uses***

Nonirrigated cropland, hay and pasture, livestock grazing, homesites

### ***Major Management Limitations***

Permeability, shrink-swell potential, frost heaving

### ***General Management Considerations***

#### **Hay and pasture**

- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Nonirrigated cropland**

- Other than climate, this soil has no limitations for this use.

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- The restricted permeability in the lower layers may make special design of absorption lines necessary.

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Unsurfaced roads are dusty when dry.

### **139—Hurwal silt loam, moist, 8 to 15 percent slopes**

#### ***Composition***

*Hurwal and similar soils*—90 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position*: Footslopes, typically slightly north-facing

*Landform*: Hills

*Parent material*: Loess with an influence of volcanic ash in the upper part

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 18 inches—very dark grayish brown silt loam

18 to 27 inches—dark brown silty clay loam

27 to 56 inches—dark yellowish brown silty clay loam

56 to 60 inches—dark yellowish brown silt loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Thickness of volcanic ash influence*: Extends to a depth of 12 to 20 inches

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: About 11 inches

*Potential frost action*: Moderate

*Hazard of erosion*: Moderate

*Shrink-swell potential*: Moderate

#### ***Contrasting Inclusions***

- Rondowa soils on outwash fans
- Minam soils at the base of gentle slopes on alluvial fans

#### ***Major Uses***

Nonirrigated cropland, hay and pasture, livestock grazing, homesites

#### ***Major Management Limitations***

Water erosion, permeability, shrink-swell potential, frost heaving

#### ***General Management Considerations***

##### **Hay and pasture**

- Flood irrigation systems will not apply water uniformly because of the uneven topography.



**Nonirrigated cropland**

- Soil erosion as a result of snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.

**Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

**Homesites**

- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- The restricted permeability of the lower layers and the steepness of slope may make special design of absorption lines necessary.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of buildings and access roads necessary.
- Unsurfaced roads are dusty when dry.

**140—Hurwal silt loam, moist, 15 to 30 percent north slopes****Composition**

*Hurwal and similar soils*—90 percent

*Contrasting inclusions*—10 percent

**Setting**

*Landscape position*: North-facing backslopes

*Landform*: Hills

*Parent material*: Loess with an influence of volcanic ash in the upper part

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

0 to 12 inches—black silt loam

12 to 18 inches—very dark grayish brown silt loam

18 to 27 inches—dark brown silty clay loam

27 to 56 inches—dark yellowish brown silty clay loam

56 to 60 inches—dark yellowish brown silt loam

**Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 11 inches

*Hazard of erosion:* Severe

*Potential frost action:* Moderate

*Shrink-swell potential:* Moderate

### ***Contrasting Inclusions***

- Rondowa soils on shoulders of outwash fans
- Minam soils on adjacent alluvial fans

### ***Major Uses***

Nonirrigated cropland, hay and pasture, livestock grazing

### ***Major Management Limitations***

Water erosion, permeability, shrink-swell potential, frost heaving, slope

### ***General Management Considerations***

#### **Hay and pasture**

- Seedbed preparation up and down the slope may accelerate soil erosion.
- Bunch-type species generally increase the risk of erosion in areas of nonirrigated pasture by exposing areas of the soil.

#### **Nonirrigated cropland**

- Soil erosion as a result of snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## ***141—Imnaha-Anatone complex, 15 to 30 percent south slopes***

### ***Composition***

*Imnaha and similar soils*—55 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Imnaha—south-facing footslopes and concave backslopes;

Anatone—south-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Imnaha—volcanic ash and loess over colluvium and residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Imnaha—bluebunch wheatgrass, Idaho fescue; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

- Mean annual precipitation—17 to 25 inches
- Mean annual air temperature—42 to 44 degrees F
- Frost-free period—70 to 100 days

***Typical Profile of Imnaha***

- 0 to 5 inches—black gravelly silt loam
- 5 to 17 inches—very dark gray gravelly silt loam
- 17 to 21 inches—very dark grayish brown very gravelly silt loam
- 21 to 24 inches—dark brown very gravelly loam
- 24 inches—basalt

***Properties and Qualities of Imnaha***

- Depth to bedrock:* 20 to 40 inches
- Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 6 inches
- Hazard of erosion:* Severe
- Shrink-swell potential:* Low

***Typical Profile of Anatone***

- 0 to 3 inches—very dark grayish brown very stony silt loam
- 3 to 6 inches—very dark grayish brown very cobbly silt loam
- 6 to 12 inches—dark brown very cobbly silty clay loam
- 12 inches—basalt

***Properties and Qualities of Anatone***

- Depth to bedrock:* 10 to 20 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 2 inches
- Hazard of erosion:* Severe

***Contrasting Inclusions***

- Clearline soils on middle backslopes
- Harlow and Snell soils on shoulders and convex backslopes
- Cherrycreek soils on footslopes and concave backslopes

***Major Use***

Imnaha and Anatone—livestock grazing

***Major Management Limitations***

Imnaha and Anatone—water erosion, cool winter temperatures  
Anatone—depth to bedrock, very stony soil surface, available water capacity

***General Management Considerations*****Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils

- are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Anatone soil limits construction of water impoundments.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.
- Livestock tend to graze in the less stony areas.
- The very stony upper layer of the Anatone soil restricts the operation of ground seeding equipment.
- Droughtiness of the Anatone soil may limit the success of seedings and the choice of species for seedings.
- Seeding areas of the Anatone soil that are in poor condition is difficult because of the soil depth or stoniness, or both.

### **142—Imnaha-Anatone complex, 30 to 60 percent north slopes**

#### ***Composition***

*Imnaha and similar soils*—35 percent

*Imnaha, moist, and similar soils*—30 percent

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Imnaha—north-facing concave backslopes; Imnaha, moist—north-facing middle backslopes and V-shaped drainageways; Anatone—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Imnaha and Imnaha, moist—mixed volcanic ash and loess over colluvium and residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Imnaha—Idaho fescue, bluebunch wheatgrass; Imnaha, moist—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 25 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Imnaha and Imnaha, Moist***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

#### ***Properties and Qualities of Imnaha and Imnaha, Moist***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Cherrycreek soils on concave backslopes
- Linecreek soils in V-shaped depressions on backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on convex backslopes

### ***Major Use***

Imnaha, Imnaha, moist, and Anatone—livestock grazing

### ***Major Management Limitations***

Imnaha, Imnaha, moist, and Anatone—water erosion, slope, cool winter temperatures

Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.

## ***143—Imnaha-Bocker-Clearline complex, 30 to 60 percent south slopes***

### ***Composition***

*Imnaha and similar soils*—40 percent

*Bocker and similar soils*—25 percent

*Clearline and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Imnaha—south-facing middle backslopes; Bocker—south-facing

convex backslopes; Clearline—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt; Bocker—loess and colluvium derived from basalt; Clearline—mixed volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Imnaha and Clearline—bluebunch wheatgrass, Idaho fescue; Bocker—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Typical Profile of Clearline***

0 to 4 inches—very dark grayish brown very gravelly silt loam

4 to 16 inches—very dark grayish brown very gravelly silt loam

16 to 26 inches—dark brown very gravelly fine sandy loam

26 to 36 inches—yellowish brown very gravelly fine sandy loam

36 to 42 inches—dark yellowish brown very cobbly loam

42 to 55 inches—brown very cobbly loam

55 inches—basalt

### ***Properties and Qualities of Clearline***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Snell soils on concave backslopes
- Anatone and Harlow soils on convex backslopes

### ***Major Use***

Imnaha, Bocker, and Clearline—livestock grazing

### ***Major Management Limitations***

Imnaha, Bocker, and Clearline—water erosion, slope, cool winter temperatures

Bocker—depth to bedrock, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Livestock tend to graze the easily accessible forage on the gentler slopes before they graze the forage on the steeper slopes.
- Slope restricts the operation of ground seeding equipment.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Bocker soil restricts the rooting depth.
- The shallow depth of the Bocker soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Bocker soil causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the Bocker soil may limit the success of seedings and the choice of species for seedings.

## ***144—Imnaha-Cherrycreek-Anatone association, 30 to 60 percent slopes***

### ***Composition***

*Imnaha and similar soils*—45 percent

*Cherrycreek and similar soils*—30 percent

*Anatone and similar soils*—15 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Imnaha—north-facing convex backslopes; Cherrycreek—north-facing concave backslopes; Anatone—south-facing middle backslopes

*Landform:* Canyons

*Parent material:* Imnaha and Cherrycreek—mixed volcanic ash and loess over colluvium and residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 6,200 feet

*Native plants:* Imnaha—Idaho fescue, bluebunch wheatgrass; Cherrycreek—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat



*Climatic factors:*

Mean annual precipitation—17 to 24 inches  
 Mean annual air temperature—41 to 45 degrees F  
 Frost-free period—70 to 100 days

***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam  
 5 to 17 inches—very dark gray gravelly silt loam  
 17 to 21 inches—very dark grayish brown very gravelly silt loam  
 21 to 24 inches—dark brown very gravelly loam  
 24 inches—basalt

***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe

***Typical Profile of Cherrycreek***

0 to 9 inches—black extremely cobbly silt loam  
 9 to 28 inches—very dark grayish brown extremely cobbly silt loam  
 28 to 43 inches—brown extremely cobbly silt loam  
 43 to 53 inches—reddish brown extremely cobbly silt loam  
 53 inches—basalt

***Properties and Qualities of Cherrycreek***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Severe

***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Harlow soils on south-facing convex backslopes
- Clearline soils on north-facing convex backslopes
- Snell soils on south-facing middle backslopes

### ***Major Use***

Imnaha, Cherrycreek, and Anatone—livestock grazing

### ***Major Management Limitations***

Imnaha, Cherrycreek, and Anatone—water erosion, slope, cool winter temperatures

Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.
- The low annual precipitation limits production and seasonal availability of forage.

## ***145—Imnaha-Clearline-Rock outcrop complex, 60 to 90 percent south slopes***

### ***Composition***

*Imnaha and similar soils*—40 percent

*Clearline and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Imnaha—south-facing convex backslopes; Clearline—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt; Clearline—mixed volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam  
 21 to 24 inches—dark brown very gravelly loam  
 24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe

### ***Typical Profile of Clearline***

0 to 4 inches—very dark grayish brown very gravelly silt loam  
 4 to 16 inches—very dark grayish brown very gravelly silt loam  
 16 to 26 inches—dark brown very gravelly fine sandy loam  
 26 to 36 inches—yellowish brown very gravelly fine sandy loam  
 36 to 42 inches—dark yellowish brown very cobbly loam  
 42 to 55 inches—brown very cobbly loam  
 55 inches—basalt

### ***Properties and Qualities of Clearline***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 40 to 50 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 7 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Harlow and Snell soils on convex backslopes

### ***Major Use***

Imnaha and Clearline—livestock grazing

### ***Major Management Limitations***

Imnaha, Clearline, and Rock outcrop—slope  
 Imnaha and Clearline—water erosion, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## **146—Imnaha-Rock outcrop-Cherrycreek complex, 60 to 90 percent north slopes**

### ***Composition***

*Cherrycreek and similar soils*—45 percent

*Rock outcrop*—25 percent

*Imnaha and similar soils*—20 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Cherrycreek—north-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes; Imnaha—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,500 feet

*Native plants:* Imnaha—Idaho fescue, bluebunch wheatgrass; Cherrycreek—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry

### ***Climatic factors:***

Mean annual precipitation—15 to 25 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Cherrycreek***

0 to 9 inches—black very cobbly silt loam

9 to 28 inches—very dark grayish brown extremely cobbly silt loam

28 to 43 inches—brown extremely cobbly silt loam

43 to 53 inches—reddish brown extremely cobbly silt loam

53 inches—basalt

### ***Properties and Qualities of Cherrycreek***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches

*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Anatone and Bocker soils on convex backslopes
- Getaway soils on concave backslopes

### ***Major Use***

Imnaha and Cherrycreek—livestock grazing

### ***Major Management Limitations***

Imnaha, Rock outcrop, and Cherrycreek—slope  
 Imnaha and Cherrycreek—water erosion, cool winter temperatures

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The areas of Rock outcrop restrict the movement of livestock.

## ***147—Josset loam, 0 to 2 percent slopes***

### ***Composition***

*Josset and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Slightly convex areas  
*Landform:* High flood plains  
*Parent material:* Mixed alluvium  
*Elevation:* 3,400 to 4,400 feet  
*Native plants:* Basin wildrye, willow, Idaho fescue, bluegrass  
*Climatic factors:*

Mean annual precipitation—13 to 17 inches  
 Mean annual air temperature—42 to 45 degrees F  
 Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 11 inches—very dark brown loam  
 11 to 22 inches—very dark grayish brown fine sandy loam  
 22 to 60 inches—multicolored very gravelly sand

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to very gravelly layer:* 20 to 36 inches

*Drainage class:* Moderately well drained

*Depth to water table (apparent):* 2.5 to 3.5 feet in January through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 4 inches

*Frequency of flooding:* Occasional in January through April

*Hazard of erosion:* Slight

*Corrosivity to uncoated steel:* High

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Eggleston soils in slightly convex areas
- Cheval soils in depressions
- Redmount soils on slightly higher outwash plains

### ***Major Uses***

Hay and pasture, homesites

### ***Major Management Limitations***

Flooding, permeability, depth to very gravelly sandy layer, available water capacity, high water table, corrosivity, frost heaving

### ***General Management Considerations***

#### **Hay and pasture**

- The very rapid permeability increases the risk of deep percolation of irrigation water below the root zone.
- The available moisture limits production to drought-tolerant crops.
- The contrasting very gravelly sandy layer restricts the growth of deep-rooted plants.
- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The risk of seepage limits construction of water impoundments.
- The seasonal high water table provides supplemental moisture for plants.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Septic tank absorption fields may function poorly because of wetness late in winter and in spring.
- The very rapid permeability of the lower layer may result in pollution of the ground water from onsite sewage disposal systems.
- Seasonal flooding may effect onsite sewage disposal systems.
- The lower layer may be unsuitable for use as landscaping material because of the content of gravel. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***148—Kahler-Anatone complex, 30 to 60 percent slopes***

### ***Composition***

*Kahler and similar soils*—50 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Kahler—concave backslopes; Anatone—convex backslopes

*Landform:* Canyons

*Parent material:* Kahler—colluvium derived from basalt mixed with volcanic ash and loess in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet; areas at the higher elevations are on south-facing slopes and those at the lower elevations are on north-facing slopes

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Kahler—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Kahler***

0 to 5 inches—very dark brown silt loam

5 to 27 inches—very dark gray silt loam

27 to 40 inches—very dark grayish brown gravelly loam

40 to 44 inches—dark brown gravelly loam

44 to 61 inches—brown gravelly silty clay loam

### ***Properties and Qualities of Kahler***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 24 to 34 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Klicker soils on south-facing concave backslopes
- Bocker soils on convex backslopes
- Getaway soils on north-facing concave backslopes

### ***Major Uses***

Kahler—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Kahler—sheet and rill erosion, cut and fill erosion, equipment limitations, soil



compaction, soil displacement, plant competition, puddling, dustiness  
 Anatone—depth to bedrock, water erosion, slope, very stony soil surface, available water capacity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Livestock tend to graze the easily accessible forage on the gentler slopes before they graze the forage on the steeper side slopes.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***149—Kahler-Anatone-Rock outcrop complex, 60 to 90 percent slopes***

### ***Composition***

*Kahler and similar soils*—40 percent

*Anatone and similar soils*—35 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Kahler—concave backslopes; Anatone—convex backslopes;

Rock outcrop (horizontal layers of exposed bedrock)—backslopes

*Landform:* Canyons

*Parent material:* Kahler—colluvium derived from basalt mixed with volcanic ash and loess in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet; areas at the higher elevations are on south-facing slopes and those at the lower elevations are on north-facing slopes

*Native plants:* Kahler—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches  
 Mean annual air temperature—42 to 45 degrees F  
 Frost-free period—70 to 100 days

***Typical Profile of Kahler***

0 to 5 inches—very dark brown silt loam  
 5 to 27 inches—very dark gray silt loam  
 27 to 40 inches—very dark grayish brown gravelly loam  
 40 to 44 inches—dark brown gravelly loam  
 44 to 61 inches—brown gravelly silty clay loam

***Properties and Qualities of Kahler***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 24 to 34 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Very severe

***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Very severe

***Contrasting Inclusions***

- Klicker soils on south-facing convex backslopes
- Bocker soils on convex backslopes
- Getaway soils on north-facing backslopes

***Major Uses***

Kahler—timber production  
 Anatone—livestock grazing

***Major Management Limitations***

Kahler, Anatone, and Rock outcrop—slope  
 Kahler and Anatone—water erosion  
 Kahler—cut and fill erosion, equipment operability, soil compaction, soil displacement, plant competition  
 Anatone—depth to bedrock, available water capacity

***General Management Considerations*****Livestock grazing**

- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***150—Kahler-Linecreek-Getaway complex, 30 to 60 percent north slopes***

#### ***Composition***

*Kahler and similar soils—35 percent*

*Linecreek and similar soils—30 percent*

*Getaway and similar soils—20 percent*

*Contrasting inclusions—15 percent*

#### ***Setting***

*Landscape position:* Kahler—north-facing concave middle backslopes; Linecreek—north-facing V-shaped drainageways on backslopes; Getaway—north-facing convex middle backslopes

*Landform:* Canyons

*Parent material:* Kahler and Linecreek—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part; Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Kahler***

0 to 5 inches—very dark brown silt loam  
5 to 27 inches—very dark gray silt loam  
27 to 40 inches—very dark grayish brown gravelly loam  
40 to 44 inches—dark brown gravelly loam  
44 to 61 inches—brown gravelly silty clay loam

### ***Properties and Qualities of Kahler***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 24 to 34 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam  
9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam  
22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam  
35 to 50 inches—yellowish brown extremely cobbly fine sandy loam  
50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* About 11 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Getaway***

1 inch to 0—mostly needles and twigs  
0 to 13 inches—very dark brown cobbly silt loam  
13 to 48 inches—dark brown very cobbly silty clay loam  
48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Anatone and Bocker soils on convex backslopes
- Larabee soils on middle backslopes
- Tolo soils on concave backslopes

### ***Major Use***

Kahler, Linecreek, and Getaway—timber production

### ***Major Management Limitations***

Kahler, Linecreek, and Getaway—sheet and rill erosion, equipment limitations, soil displacement, puddling, dustiness  
 Kahler and Linecreek—plant competition  
 Kahler and Getaway—soil compaction  
 Kahler—cut and fill erosion  
 Linecreek and Getaway—fire damage  
 Getaway—seedling mortality

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Kahler soil to reduce soil loss from cut and fill slopes.
- To minimize soil damage from compaction of the Kahler and Getaway soils, carefully choose the type of equipment and the timing of operations.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation on the Kahler and Linecreek soils.
- Prescribed burning or natural fires of moderate intensity on the Linecreek and Getaway soils may result in loss of soil, loss of nutrients, and water repellency.

### ***151—Kahler-Linecreek-Getaway complex, 60 to 90 percent north slopes***

#### ***Composition***

*Kahler and similar soils*—35 percent  
*Linecreek and similar soils*—35 percent  
*Getaway and similar soils*—15 percent  
*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Kahler—north-facing concave middle backslopes; Linecreek—north-facing V-shaped drainageways of backslopes; Getaway—north-facing convex middle backslopes

*Landform:* Canyons

*Parent material:* Kahler and Linecreek—colluvium derived from basalt mixed with volcanic ash and loess in the upper part; Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Kahler***

0 to 5 inches—very dark brown silt loam

5 to 27 inches—very dark gray silt loam

27 to 40 inches—very dark grayish brown gravelly loam

40 to 44 inches—dark brown gravelly loam

44 to 61 inches—brown gravelly silty clay loam

### ***Properties and Qualities of Kahler***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 24 to 34 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam

9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam

22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam

35 to 50 inches—yellowish brown extremely cobbly fine sandy loam

50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 11 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 6 inches—very dark brown cobbly silt loam

6 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Anatone and Bocker soils on convex backslopes
- Larabee soils on middle backslopes
- Tolo soils on concave backslopes

**Major Use**

Kahler, Linecreek, and Getaway—timber production

**Major Management Limitations**

Kahler, Linecreek, and Getaway—sheet and rill erosion, cut and fill erosion, equipment limitations, soil displacement, puddling, dustiness

Kahler and Linecreek—plant competition

Kahler and Getaway—soil compaction

Getaway—seedling mortality

Linecreek and Getaway—fire damage

**General Management Considerations****Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- To minimize soil damage from compaction of the Kahler and Getaway soils, carefully choose the type of equipment and the timing of operations.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation on the Kahler and Linecreek soils.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency on the Linecreek and Getaway soils.

**152—Klicker stony silt loam, 2 to 15 percent slopes****Composition**

*Klicker and similar soils*—85 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position*: Summits

*Landform*: Plateaus, structural benches

*Parent material*: Loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Ponderosa pine, snowberry, elk sedge, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam



3 to 10 inches—dark brown cobbly silt loam  
 10 to 18 inches—dark brown very cobbly silty clay loam  
 18 to 24 inches—dark brown extremely cobbly silty clay loam  
 24 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Anatone soils scattered throughout summits
- Bocker soils on shoulders
- Tolo soils on adjacent north-facing backslopes and toeslopes
- Rock outcrop scattered throughout summits
- Kamela soils on footslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Stones on soil surface, permeability, available water capacity, soil compaction, depth to bedrock, water erosion, seedling mortality, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***153—Klicker stony silt loam, 15 to 30 percent north slopes***

### ***Composition***

*Klicker and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes  
*Landform:* Canyons  
*Parent material:* Loess and colluvium derived from basalt with an influence of volcanic ash in the upper part  
*Elevation:* 2,800 to 5,000 feet  
*Native plants:* Ponderosa pine, snowberry, elk sedge, bluebunch wheatgrass  
*Climatic factors:*  
 Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Getaway soils on footslopes and concave backslopes
- Anatone soils on shoulders
- Tolo soils on footslopes and concave backslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Hazard of compaction, water erosion, equipment operability, available water capacity, stones on soil surface, depth to bedrock, permeability, seedling mortality, plant competition, windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***154—Klicker stony silt loam, 30 to 60 percent north slopes***

### ***Composition***

*Klicker and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Getaway soils on concave backslopes
- Anatone soils on convex backslopes
- Tolo soils on concave backslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Slope, soil compaction, equipment operability, water erosion, available water capacity, stones on soil surface, depth to bedrock, permeability, soil displacement, plant competition, windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.

- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers.
- Unsurfaced roads are dusty when dry.

### **155—Klicker stony silt loam, 15 to 30 percent south slopes**

#### **Composition**

*Klicker and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position*: South-facing backslopes

*Landform*: Canyons

*Parent material*: Loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation*: 4,000 to 5,000 feet

*Native plants*: Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile**

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

#### **Soil Properties and Qualities**

*Depth to bedrock*: 20 to 40 inches

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: About 3 inches

*Hazard of erosion*: Severe

#### **Contrasting Inclusions**

- Harlow soils on shoulders
- Anatone and Bocker soils on shoulders
- Rock outcrop on shoulders
- Tolo soils on adjacent north-facing backslopes and footslopes
- Kamela soils on footslopes

#### **Major Use**

Timber production

#### **Major Management Limitations**

Hazard of compaction, water erosion, stones on soil surface, permeability, available water capacity, depth to bedrock, droughtiness, equipment operability, seedling mortality, plant competition, fire damage, windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***156—Klicker stony silt loam, 30 to 60 percent south slopes***

#### ***Composition***

*Klicker and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: South-facing backslopes

*Landform*: Canyons

*Parent material*: Loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation*: 4,000 to 5,000 feet

*Native plants*: Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

#### ***Soil Properties and Qualities***

*Depth to bedrock*: 20 to 40 inches

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: About 3 inches

*Hazard of erosion*: Very severe

#### ***Contrasting Inclusions***

- Harlow soils on convex backslopes

- Anatone and Bocker soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on shoulders and backslopes
- Tolo soils on adjacent north-facing backslopes
- Kamela soils on concave backslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Slope, soil compaction, equipment operability, water erosion, stones on soil surface, permeability, available water capacity, depth to bedrock, droughtiness, soil displacement, seedling mortality, plant competition, fire damage, windthrow

### ***General Management Considerations***

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***157—Klicker-Anatone complex, 2 to 15 percent slopes***

### ***Composition***

*Klicker and similar soils*—50 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Klicker—concave summits; Anatone—convex summits and shoulders

*Landform:* Plateaus, structural benches

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles  
 0 to 3 inches—very dark grayish brown stony silt loam  
 3 to 10 inches—dark brown cobbly silt loam  
 10 to 18 inches—dark brown very cobbly silty clay loam  
 18 to 24 inches—dark brown extremely cobbly silty clay loam  
 24 inches—fractured basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—fractured basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Rock outcrop on shoulders
- Buford soils on mounds of summits
- Bocker soils on convex summits
- Kamela soils on footslopes

### ***Major Uses***

Klicker—timber production  
 Anatone—livestock grazing

### ***Major Management Limitations***

Klicker and Anatone—depth to bedrock, water erosion, available water capacity, stones on soil surface  
 Klicker—soil compaction, permeability, seedling mortality, plant competition, windthrow

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.



- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### **158—Klicker-Anatone complex, 15 to 30 percent south slopes**

#### ***Composition***

*Klicker and similar soils*—50 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klicker—south-facing footslopes and concave backslopes;

Anatone—south-facing shoulders and convex backslopes

*Landform:* Canyons, mountains

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—fractured basalt

#### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—fractured basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rock outcrop consisting of horizontal layers of exposed bedrock on shoulders and convex backslopes
- Bocker soils on shoulders and convex backslopes
- Kamela soils on footslopes and concave backslopes

### ***Major Uses***

Klicker—timber production  
 Anatone—livestock grazing

### ***Major Management Limitations***

Klicker and Anatone—depth to bedrock, water erosion, available water capacity, stones on soil surface  
 Klicker—permeability, soil compaction, droughtiness, equipment operability, seedling mortality, plant competition, fire damage, windthrow

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.

- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### **159—Klicker-Anatone complex, 30 to 60 percent south slopes**

#### ***Composition***

*Klicker and similar soils*—50 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klicker—south-facing concave backslopes; Anatone—south-facing convex backslopes

*Landform:* Canyons, mountains

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

#### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

#### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

#### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion: Severe*

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Kamela soils on concave backslopes

### ***Major Uses***

Klicker—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Klicker and Anatone—slope, water erosion, depth to bedrock, available water capacity, stones on soil surface

Klicker—permeability, soil compaction, equipment operability, droughtiness, soil displacement, seedling mortality, plant competition, fire damage, windthrow

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***160—Klicker-Fivebit-Anatone complex, 0 to 15 percent slopes***

### ***Composition***

*Klicker and similar soils—35 percent*

*Fivebit and similar soils—30 percent*

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Klicker—concave summits; Fivebit—convex summits; Anatone—shoulders

*Landform:* Plateaus, structural benches

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the surface; Fivebit—colluvium and residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Fivebit—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Fivebit***

0 to 4 inches—very dark grayish brown very gravelly sandy loam

4 to 9 inches—dark brown extremely gravelly sandy loam

9 to 15 inches—dark brown extremely gravelly sandy loam

15 to 19 inches—brown extremely gravelly sandy loam

19 inches—basalt

### ***Properties and Qualities of Fivebit***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Bocker soils on shoulders
- Tolo soils on north-facing footslopes
- Kamela soils on south-facing footslopes

### ***Major Uses***

Klicker and Fivebit—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Klicker, Fivebit, and Anatone—water erosion, cool winter temperatures

Klicker and Fivebit—sheet and rill erosion, soil displacement, seedling mortality, windthrow, plant competition, puddling, dustiness

Klicker—soil compaction, fire damage

Anatone—depth to bedrock, permeability, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- The upper layer of the soil is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads and skid trails are firm when wet.

- Unsurfaced roads and skid trails are dusty when dry.
- To minimize soil damage from compaction of the Klicker soil, carefully choose the type of equipment and the timing of operations.
- Prescribed burning or natural fires of moderate intensity on the Klicker soil may result in loss of soil, loss of nutrients, and water repellency.

## **161—Klicker-Fivebit-Anatone complex, 30 to 60 percent slopes**

### ***Composition***

*Klicker and similar soils*—35 percent

*Fivebit and similar soils*—30 percent

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Klicker—south-facing concave backslopes; Fivebit—south-facing convex backslopes; Anatone—north- and south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Fivebit—colluvium and residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,000 to 6,200 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Fivebit—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Anatone, north-facing—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Anatone, south-facing—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—15 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Fivebit***

0 to 4 inches—very dark grayish brown very gravelly sandy loam

4 to 9 inches—dark brown extremely gravelly sandy loam

9 to 15 inches—dark brown extremely gravelly sandy loam



15 to 19 inches—brown extremely gravelly sandy loam  
 19 inches—basalt

### ***Properties and Qualities of Fivebit***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tolo soils on north-facing backslopes
- Bocker soils on convex backslopes
- Getaway soils on north-facing backslopes

### ***Major Uses***

Klicker and Fivebit—timber production  
 Anatone—livestock grazing

### ***Major Management Limitations***

Klicker, Fivebit, and Anatone—slope, water erosion, cool winter temperatures  
 Klicker and Fivebit—equipment limitations, sheet and rill erosion, soil displacement, seedling mortality, windthrow, plant competition, puddling, dustiness, fire damage  
 Klicker—soil compaction  
 Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness may limit the success of seedlings and the choice of species for seedings.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads and skid trails are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- To minimize soil damage from compaction of the Klicker soil, carefully choose the type of equipment and the timing of operations.

## **162—Klicker-Harlow complex, 15 to 30 percent south slopes**

### ***Composition***

*Klicker and similar soils*—50 percent

*Harlow and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Klicker—south-facing footslopes and concave backslopes;  
Harlow—south-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Harlow—loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Klicker—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—fractured basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
 4 to 8 inches—dark grayish brown very cobbly clay loam  
 8 to 16 inches—dark brown extremely cobbly clay  
 16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Fivebit soils on middle backslopes
- Bocker soils on shoulders and convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes

### ***Major Uses***

Klicker—timber production  
 Harlow—livestock grazing

### ***Major Management Limitations***

Klicker and Harlow—water erosion, available water capacity, droughtiness, depth to bedrock, permeability, stones on soil surface, slope  
 Klicker—soil compaction, equipment operability, seedling mortality, plant competition, fire damage, windthrow  
 Harlow—shrink-swell potential, depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Livestock tend to graze in the less stony areas.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.

#### **Timber production**

- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***163—Klicker-Kamela-Fivebit complex, 60 to 90 percent slopes***

#### ***Composition***

*Klicker and similar soils*—40 percent

*Kamela and similar soils*—30 percent

*Fivebit and similar soils*—15 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klicker—south-facing concave backslopes; Kamela—north-facing concave backslopes; Fivebit—south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Kamela—colluvium derived from basalt mixed with volcanic ash and loess in the upper part; Fivebit—colluvium and residuum derived from basalt

*Elevation:* 3,000 to 6,200 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Kamela—grand fir, Douglas fir, ponderosa pine, elk sedge, pinegrass, heartleaf arnica; Fivebit—ponderosa pine, Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

#### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Kamela***

1 inch to 0—partially decomposed needles and twigs  
 0 to 8 inches—dark yellowish brown gravelly loam  
 8 to 22 inches—dark brown very cobbly loam  
 22 inches—basalt

### ***Properties and Qualities of Kamela***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Very severe

### ***Typical Profile of Fivebit***

0 to 4 inches—very dark grayish brown very gravelly sandy loam  
 4 to 9 inches—dark brown extremely gravelly sandy loam  
 9 to 15 inches—dark brown extremely gravelly sandy loam  
 15 to 19 inches—brown extremely gravelly sandy loam  
 19 inches—basalt

### ***Properties and Qualities of Fivebit***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Anatone soils on convex backslopes
- Tolo and Getaway soils on north-facing concave backslopes

### ***Major Uses***

Klicker, Kamela, and Fivebit—timber production  
 Fivebit—livestock grazing

### ***Major Management Limitations***

Klicker, Kamela, and Fivebit—slope, water erosion, equipment operability, cut and fill erosion, soil displacement, seedling mortality, plant competition, windthrow  
 Klicker and Kamela—soil compaction  
 Kamela—fire damage  
 Fivebit—depth to bedrock, available water capacity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Droughtiness may limit the success of seedlings and the choice of species for

broadcast seedings following natural fires of high intensity.

- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Prescribed burning or natural fires of moderate intensity on the Kamela soil may result in loss of soil, loss of nutrients, and water repellency.
- To minimize soil damage from compaction of the Klicker and Kamela soils, carefully choose the type of equipment and the timing of operations.

### ***164—Klicker-Olot complex, 30 to 60 percent north slopes***

#### ***Composition***

*Klicker and similar soils*—55 percent

*Olot and similar soils*—30 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klicker—north-facing concave backslopes; Olot—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Olot—volcanic ash over colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Fivebit soils on convex backslopes
- Tolo and Getaway soils on concave backslopes

### ***Major Use***

Klicker and Olot—timber production

### ***Major Management Limitations***

Klicker and Olot—equipment operability, soil compaction, water erosion, soil displacement, windthrow, plant competition, dustiness

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails on the Klicker soil are dusty when dry.
- Unsurfaced roads and skid trails on the Olot soil are very dusty when dry because of the surface volcanic ash.



## **165—Klicker-Thirstygulch-Anatone complex, 15 to 30 percent slopes**

### ***Composition***

*Klicker and similar soils*—35 percent

*Thirstygulch and similar soils*—30 percent

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Klicker—south-facing footslopes and concave backslopes; Thirstygulch—north-facing shoulders and convex backslopes; Anatone—north- and south-facing footslopes, drainageways, and concave backslopes

*Landform:* Canyons

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Thirstygulch—mixed loess, volcanic ash, and colluvium derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Thirstygulch—Douglas fir, ponderosa pine, pinegrass, elk sedge, heartleaf arnica; Anatone, south-facing—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Anatone, north-facing—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation: 20 to 25 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown gravelly silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Thirstygulch***

1 inch to 0—decomposed needles and leaves

0 to 10 inches—very dark grayish brown very stony loam

10 to 19 inches—dark brown extremely cobbly silt loam

19 inches—basalt

### ***Properties and Qualities of Thirstygulch***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Bocker soils on shoulders and convex backslopes
- Bunchpoint soils on north-facing footslopes and toeslopes
- Fivebit soils on south-facing backslopes
- Downeygulch soils on north-facing footslopes and concave backslopes

### ***Major Uses***

Klicker and Thirstygulch—timber production  
 Anatone—livestock grazing

### ***Major Management Limitations***

Klicker, Thirstygulch, and Anatone—water erosion, cool winter temperatures  
 Klicker and Thirstygulch—sheet and rill erosion, soil compaction, seedling mortality,  
 windthrow, plant competition, puddling, dustiness  
 Klicker—fire damage  
 Thirstygulch—equipment limitations  
 Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.

- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Prescribed burning or natural fires of moderate intensity on the Klicker soil may result in the loss of soil, loss of nutrients, and water repellency.
- Surface rock fragments on the Thirstygulch soil make tree planting difficult.
- Stones or boulders on the surface of the Thirstygulch soil may cause breakage of timber and can interfere with felling, yarding, and other operations.

### **166—Klicker-Thirstygulch-Anatone complex, 30 to 60 percent slopes**

#### **Composition**

*Klicker and similar soils*—35 percent

*Thirstygulch and similar soils*—30 percent

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Klicker—south-facing concave backslopes; Thirstygulch—north-facing convex backslopes; Anatone—north- and south-facing drainageways and concave backslopes

*Landform:* Canyons

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Thirstygulch—mixed loess, volcanic ash, and colluvium derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Thirstygulch—Douglas fir, ponderosa pine, pinegrass, elk sedge, heartleaf arnica; Anatone, north-facing—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Anatone, south-facing—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat (fig. 14)

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile of Klicker**

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown gravelly silt loam



**Figure 14.—Typical area of Klicker-Thirstygulch-Anatone complex, 30 to 60 percent slopes, east of the town of Joseph. Interspersed Douglas fir is dominant in the areas of forestland, and Idaho fescue is dominant in the areas of rangeland.**

3 to 10 inches—dark brown cobbly silt loam  
 10 to 18 inches—dark brown very cobbly silty clay loam  
 18 to 24 inches—dark brown extremely cobbly silty clay loam  
 24 inches—basalt

#### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe

#### ***Typical Profile of Thirstygulch***

1 inch to 0—decomposed needles and leaves  
 0 to 10 inches—very dark grayish brown very stony loam  
 10 to 19 inches—dark brown extremely cobbly silt loam  
 19 inches—basalt

#### ***Properties and Qualities of Thirstygulch***

*Depth to bedrock:* 10 to 20 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
3 to 6 inches—very dark grayish brown very cobbly silt loam  
6 to 12 inches—dark brown very cobbly silty clay loam  
12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Bunchpoint soils on north-facing footslopes
- Fivebit soils on south-facing backslopes
- Downeygulch soils on north-facing backslopes

### ***Major Uses***

Klicker and Thirstygulch—timber production  
Anatone—livestock grazing

### ***Major Management Limitations***

Klicker, Thirstygulch, and Anatone—water erosion, cool winter temperatures  
Klicker and Thirstygulch—sheet and rill erosion, soil compaction, seedling mortality, windthrow, plant competition, puddling, dustiness  
Klicker—fire damage  
Thirstygulch—equipment limitations  
Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Droughtiness may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.

- Because the soils are droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Prescribed burning or natural fires of moderate intensity on the Klicker soil may result in the loss of soil, loss of nutrients, and water repellency.
- The Klicker soil is susceptible to being pushed from its natural position during equipment operations.
- Surface rock fragments make tree planting difficult on the Thirstygulch soil.

### **167—Klicker-Rock outcrop-Anatone complex, 60 to 90 percent slopes**

#### ***Composition***

*Klicker and similar soils*—40 percent

*Rock outcrop*—25 percent

*Anatone and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klicker—north-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north- and south-facing backslopes; Anatone—south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 6,200 feet

*Native plants:* Klicker—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles

0 to 3 inches—very dark grayish brown stony silt loam

3 to 10 inches—dark brown cobbly silt loam

10 to 18 inches—dark brown very cobbly silty clay loam

18 to 24 inches—dark brown extremely cobbly silty clay loam

24 inches—basalt

#### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe



### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
3 to 6 inches—very dark grayish brown very cobbly silt loam  
6 to 12 inches—dark brown very cobbly silty clay loam  
12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Getaway soils on north-facing concave backslopes
- Bocker soils on convex backslopes
- Kamela soils on south-facing concave backslopes

### ***Major Uses***

Klicker—timber production  
Anatone—livestock grazing

### ***Major Management Limitations***

Klicker, Rock outcrop, and Anatone—slope  
Klicker and Anatone—water erosion  
Klicker—equipment operability, soil compaction, cut and fill erosion, soil displacement, seedling mortality, windthrow, plant competition  
Anatone—depth to bedrock, very stony soil surface, stability, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soil is susceptible to being pushed from its natural position during equipment



- operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
  - Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
  - Uncontrolled competing vegetation may retard reforestation.
  - Unsurfaced roads are soft when wet.
  - Unsurfaced roads and skid trails are dusty when dry.
  - Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
  - Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.

### ***168—Klickson-Anatone-Larabee complex, 30 to 60 percent north slopes***

#### ***Composition***

*Klickson and similar soils*—35 percent

*Anatone and similar soils*—25 percent

*Larabee and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klickson—north-facing concave backslopes; Anatone—north-facing narrow convex backslopes; Larabee—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Klickson and Larabee—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,300 feet

*Native plants:* Klickson and Larabee—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

#### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 7 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
3 to 6 inches—very dark grayish brown very cobbly silt loam  
6 to 12 inches—dark brown very cobbly silty clay loam  
12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs  
0 to 12 inches—very dark brown silt loam  
12 to 20 inches—very dark brown gravelly silt loam  
20 to 36 inches—brown very cobbly loam  
36 inches—basalt

### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tolo soils in V-shaped drainageways of backslopes
- Getaway soils on concave backslopes
- Imnaha soils on narrow convex backslopes

### ***Major Uses***

Klickson and Larabee—timber production  
Anatone—livestock grazing

### ***Major Management Limitations***

Klickson and Larabee—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, seedling mortality, plant competition, puddling, dustiness  
Klickson—fire damage  
Larabee—windthrow  
Anatone—depth to bedrock, water erosion, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is

firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on the Klickson soil are soft and sticky when wet.
- Unsurfaced roads on the Larabee soil are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Prescribed burning or natural fires of moderate intensity on the Klickson soil may result in the loss of soil, loss of nutrients, and water repellency.
- Because of the depth to bedrock, trees on the Larabee soil may be blown down when the soil is wet and winds are strong.

### ***169—Klickson-Anatone-Larabee complex, 60 to 90 percent north slopes***

#### ***Composition***

*Klickson and similar soils*—35 percent

*Anatone and similar soils*—25 percent

*Larabee and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klickson—north-facing concave backslopes; Anatone—north-facing narrow convex backslopes; Larabee—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Klickson and Larabee—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,300 feet

*Native plants:* Klickson and Larabee—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 7 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs

0 to 12 inches—very dark brown silt loam

12 to 20 inches—very dark brown gravelly silt loam

20 to 36 inches—brown very cobbly loam

36 inches—basalt

### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Tolo soils in V-shaped drainageways of backslopes
- Getaway soils on concave backslopes
- Imnaha soils on narrow convex backslopes

### ***Major Uses***

Klickson and Larabee—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Klickson and Larabee—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, seedling mortality, plant competition, puddling, dustiness

Klickson—fire damage

Larabee—windthrow

Anatone—depth to bedrock, water erosion, cool winter temperatures, slope stability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on the Klickson soil are soft and sticky when wet.
- Unsurfaced roads on the Larabee soil are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Prescribed burning or natural fires of moderate intensity on the Klickson soil may result in the loss of soil, loss of nutrients, and water repellency.
- Because of the depth to bedrock, trees on the Larabee soil may be blown down when the soil is wet and winds are strong.

### ***170—Klickson-Larabee complex, 15 to 30 percent north slopes***

#### ***Composition***

*Klickson and similar soils*—60 percent

*Larabee and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klickson—north-facing footslopes and concave backslopes;

Larabee—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,300 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 7 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs

0 to 12 inches—very dark brown silt loam

12 to 20 inches—very dark brown gravelly silt loam

20 to 36 inches—brown very cobbly loam

36 inches—basalt

### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tolo soils in V-shaped drainageways of backslopes
- Getaway soils on footslopes and concave backslopes
- Imnaha soils on shoulders and convex backslopes

### ***Major Use***

Klickson and Larabee—timber production

### ***Major Management Limitations***

Klickson and Larabee—cut and fill erosion, soil compaction, plant competition, puddling, dustiness

Larabee—sheet and rill erosion, seedling mortality, windthrow

### ***General Management Considerations***

#### **Timber production**

- Erosion control measures are needed to reduce soil loss from cut and fill slopes.

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Special precautions may be needed on the Larabee soil to control soil loss following activities that expose the soil.
- Because the Larabee soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees on the Larabee soil may be blown down when the soil is wet and winds are strong.

### ***171—Klickson-Larabee-Volstead complex, 30 to 60 percent north slopes***

#### ***Composition***

*Klickson and similar soils*—35 percent

*Larabee and similar soils*—30 percent

*Volstead and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Klickson—north-facing concave backslopes; Larabee—north-facing convex backslopes; Volstead—north-facing middle backslopes

*Landform:* Canyons

*Parent material:* Klickson and Larabee—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Volstead—mixed loess and volcanic ash over colluvium and residuum derived from volcanic tuff over basalt

*Elevation:* 2,800 to 4,600 feet

*Native plants:* Klickson and Larabee—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Volstead—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

#### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 7 inches

*Hazard of erosion:* Severe



### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs  
 0 to 12 inches—very dark brown silt loam  
 12 to 20 inches—very dark brown gravelly silt loam  
 20 to 36 inches—brown very cobbly loam  
 36 inches—basalt

### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Volstead***

1 inch to 0—needles, twigs, and logs  
 0 to 9 inches—dark reddish brown silt loam  
 9 to 13 inches—dark brown silt loam  
 13 to 23 inches—reddish brown silt loam  
 23 to 38 inches—brown gravelly clay loam  
 38 to 48 inches—brown gravelly clay  
 48 inches—basalt

### ***Properties and Qualities of Volstead***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Getaway soils on concave backslopes
- Harlow and Snell soils on convex backslopes
- Linecreek soils in V-shaped drainageways of backslopes

### ***Major Use***

Klickson, Larabee, and Volstead—timber production

### ***Major Management Limitations***

Klickson, Larabee, and Volstead—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness  
 Klickson and Larabee—cut and fill erosion  
 Klickson—fire damage  
 Larabee—windthrow, seedling mortality

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the Larabee soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on the Klickson and Larabee soils are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Klickson and Larabee soils to reduce soil loss from cut and fill slopes.
- Prescribed burning or natural fires of moderate intensity on the Klickson soil may result in the loss of soil, loss of nutrients, and water repellency.
- Trees may be blown down when the Larabee soil is wet and winds are strong.

## **172—Langrell gravelly loam, 0 to 3 percent slopes**

### ***Composition***

*Langrell and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Outwash terraces at the base of hillslopes

*Landform:* Mountain valleys

*Parent material:* Glaciofluvial deposits

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 9 inches—very dark gray gravelly loam

9 to 20 inches—very dark grayish brown gravelly loam

20 to 32 inches—very dark grayish brown very gravelly loam

32 to 50 inches—very dark grayish brown extremely cobbly sandy loam

50 to 60 inches—very dark gray extremely gravelly coarse sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Frequency of flooding:* Rare

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Conley soils in depressions on alluvial fans
- Gelsinger soils on fans
- Snow soils on terraces
- Ramo soils on adjacent footslopes

**Major Uses**

Irrigated cropland, hay and pasture, homesites

**Major Management Limitations**

Gravel on soil surface, flooding, depth to extremely cobbly or gravelly layers, available water capacity

**General Management Considerations****Hay and pasture**

- The available moisture limits production to drought-tolerant crops.
- The risk of seepage limits construction of water impoundments.

**Irrigated cropland**

- Flood irrigation systems may result in an induced high water table and reduced production of deep-rooted crops.
- Because the soil is droughty, irrigation water should be carefully managed to avoid crop stress and a subsequent decrease in production.

**Homesites**

- Excavation is hampered by the cobbles in the soil.
- The lower layers may be unsuitable for use as landscaping material because of the content of cobbles. Stockpile topsoil and use it to reclaim areas disturbed during construction.

**173—Langrell-Snow complex, 0 to 3 percent slopes****Composition**

*Langrell and similar soils*—50 percent

*Snow and similar soils*—35 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position:* Langrell—low terraces adjacent to streams; Snow—adjacent high terraces

*Landform:* Mountain valleys

*Parent material:* Langrell—glaciofluvial deposits; Snow—loess and alluvium

*Elevation:* 2,700 to 3,000 feet

*Native plants:* Langrell—basin wildrye, bluebunch wheatgrass, Idaho fescue; Snow—basin wildrye, willow, bluebunch wheatgrass, bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

**Typical Profile of Langrell**

0 to 9 inches—very dark gray gravelly loam

9 to 20 inches—very dark grayish brown gravelly loam

20 to 32 inches—very dark grayish brown very gravelly loam

32 to 50 inches—very dark grayish brown extremely cobbly sandy loam

50 to 60 inches—very dark gray extremely gravelly coarse sandy loam

**Properties and Qualities of Langrell**

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight

### ***Typical Profile of Snow***

0 to 18 inches—very dark brown silt loam

18 to 36 inches—very dark grayish brown silt loam

36 to 57 inches—brown silt loam

57 to 60 inches—dark grayish brown silt loam

### ***Properties and Qualities of Snow***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 12 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Phys soils on fans
- Veazie and Voats soils on flood plains adjacent to streams
- Riverwash in the immediate stream area and at the confluence of side streams on flood plains

### ***Major Use***

Langrell and Snow—hay and pasture

### ***Major Management Limitations***

Langrell—available water capacity, seepage

Snow—none other than climate

### ***General Management Considerations***

#### **Hay and pasture**

- The available moisture in the Langrell soil limits production to drought-tolerant crops.
- The seepage potential in the Langrell soil limits construction of water impoundments.
- If the Snow soil is excessively cultivated, a tillage pan forms easily.

## ***174—Larabee-Getaway-Klickson complex, 30 to 60 percent north slopes***

### ***Composition***

*Larabee and similar soils*—35 percent

*Getaway and similar soils*—30 percent

*Klickson and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Larabee—north-facing convex backslopes; Getaway—north-facing middle backslopes; Klickson—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Larabee and Klickson—colluvium derived from basalt with a mixture

of volcanic ash and loess in the upper part; Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs

0 to 12 inches—very dark brown silt loam

12 to 20 inches—very dark brown gravelly silt loam

20 to 36 inches—brown very cobbly loam

36 inches—basalt

### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 7 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tolo soils in V-shaped drainageways on backslopes
- Anatone soils on convex backslopes

### ***Major Use***

Larabee, Getaway, and Klickson—timber production

### ***Major Management Limitations***

Larabee, Getaway, and Klickson—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Larabee and Klickson—cut and fill erosion

Larabee—windthrow, seedling mortality

Getaway and Klickson—fire damage

Klickson—planting hazard

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the Larabee soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Larabee and Klickson soils to reduce soil loss from cut and fill slopes.
- Trees may be blown down when the Larabee soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity on the Getaway and Klickson soils may result in the loss of soil, loss of nutrients, and water repellency.
- Rock fragments on the Klickson soil make tree planting difficult.

## ***175—Larabee-Klickson-Volstead complex, 15 to 30 percent north slopes***

### ***Composition***

*Larabee and similar soils*—35 percent

*Getaway and similar soils*—30 percent

*Klickson and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Larabee—north-facing shoulders and convex backslopes; Klickson—north-facing footslopes and concave backslopes; Volstead—north-facing middle backslopes

*Landform:* Canyons

*Parent material:* Larabee and Klickson—colluvium derived from basalt with a mixture

of loess and volcanic ash in the upper part; Volstead—mixed loess and volcanic ash over colluvium and residuum derived from volcanic tuff over basalt

*Elevation:* 2,800 to 4,600 feet

*Native plants:* Larabee and Klickson—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Volstead—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs

0 to 12 inches—very dark brown silt loam

12 to 20 inches—very dark brown gravelly silt loam

20 to 36 inches—brown very cobbly loam

36 inches—basalt

#### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

#### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

#### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

#### ***Typical Profile of Volstead***

1 inch to 0—needles, twigs, and logs

0 to 9 inches—dark reddish brown silt loam

9 to 13 inches—dark brown silt loam

13 to 23 inches—reddish brown silt loam

23 to 38 inches—brown gravelly clay loam

38 to 48 inches—brown gravelly clay

48 inches—basalt

#### ***Properties and Qualities of Volstead***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches



*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo and Getaway soils on footslopes and concave backslopes
- Anatone soils on shoulders
- Harlow and Snell soils on shoulders and convex backslopes

### ***Major Use***

Larabee, Klickson, and Volstead—timber production

### ***Major Management Limitations***

Larabee, Klickson, and Volstead—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness  
 Larabee and Klickson—cut and fill erosion  
 Larabee—windthrow, seedling mortality  
 Klickson—fire damage, planting hazard

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the Larabee soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Larabee and Klickson soils to reduce soil loss from cut and fill slopes.
- Trees may be blown down when the Larabee soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity on the Klickson soil may result in the loss of soil, loss of nutrients, and water repellency.
- Surface rock fragments on the Klickson soil make tree planting difficult.

## ***176—Larabee-Klickson-Volstead complex, 30 to 60 percent north slopes***

### ***Composition***

*Larabee and similar soils*—35 percent  
*Getaway and similar soils*—30 percent  
*Klickson and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Larabee—north-facing convex backslopes; Klickson—

north-facing concave backslopes; Volstead—north-facing middle backslopes

*Landform:* Canyons

*Parent material:* Larabee and Klickson—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part; Volstead—mixed loess and volcanic ash over colluvium and residuum derived from volcanic tuff over basalt

*Elevation:* 2,800 to 4,600 feet

*Native plants:* Larabee and Klickson—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Volstead—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs

0 to 12 inches—very dark brown silt loam

12 to 20 inches—very dark brown gravelly silt loam

20 to 36 inches—brown very cobbly loam

36 inches—basalt

### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Klickson***

1 inch to 0—partially decomposed twigs, needles, and moss

0 to 6 inches—very dark brown very gravelly loam

6 to 18 inches—very dark grayish brown very cobbly loam

18 to 38 inches—dark brown very cobbly clay loam

38 to 66 inches—dark yellowish brown very cobbly clay loam

### ***Properties and Qualities of Klickson***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Volstead***

1 inch to 0—needles, twigs, and logs

0 to 9 inches—dark reddish brown silt loam

9 to 13 inches—dark brown silt loam

13 to 23 inches—reddish brown silt loam

23 to 38 inches—brown gravelly clay loam

38 to 48 inches—brown gravelly clay

48 inches—basalt

### ***Properties and Qualities of Volstead***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo and Getaway soils on concave backslopes
- Anatone soils on convex backslopes
- Harlow and Snell soils on convex backslopes

### ***Major Use***

Larabee, Klickson, and Volstead—timber production

### ***Major Management Limitations***

Larabee, Klickson, and Volstead—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Larabee and Klickson—cut and fill erosion

Larabee—windthrow, seedling mortality

Klickson—fire damage, planting hazard

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because the Larabee soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Larabee and Klickson soils to reduce soil loss from cut and fill slopes.
- Trees may be blown down when the Larabee soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity on the Klickson soil may result in the loss of soil, loss of nutrients, and water repellency.
- Surface rock fragments on the Klickson soil make tree planting difficult.

## ***177—Larabee-Melhorn complex, 0 to 15 percent slopes***

### ***Composition***

*Larabee and similar soils*—45 percent

*Melhorn and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position:* Larabee—convex summits; Melhorn—concave summits

*Landform:* Plateaus

*Parent material:* Colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part

*Elevation:* 3,400 to 5,400 feet

*Native plants:* Larabee—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Melhorn—Douglas fir, ponderosa pine, creambush oceanspray, mallow ninebark, common snowberry, shinyleaf spirea, rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### **Typical Profile of Larabee**

4 inches to 0—partially decomposed roots, moss, and twigs

0 to 12 inches—very dark brown silt loam

12 to 20 inches—very dark brown gravelly silt loam

20 to 36 inches—brown very cobbly loam

36 inches—basalt

### **Properties and Qualities of Larabee**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Slight or moderate

### **Typical Profile of Melhorn**

2 inches to 0—partially decomposed needles, leaves, and moss

0 to 20 inches—very dark brown and dark brown silt loam

20 to 48 inches—brown silt loam

48 to 61 inches—brown silt loam

### **Properties and Qualities of Melhorn**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 12 inches

*Hazard of erosion:* Slight or moderate

### **Contrasting Inclusions**

- Klickson soils on footslopes
- Anatone soils on shoulders

### **Major Use**

Larabee and Melhorn—timber production

### ***Major Management Limitations***

Larabee and Melhorn—soil compaction, seedling mortality, plant competition, puddling, dustiness  
 Larabee—windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are dusty when dry.
- Because of the depth to bedrock, trees on the Larabee soil may be blown down when the soil is wet and winds are strong.

## ***178—Larabee-Volstead complex, 15 to 30 percent north slopes***

### ***Composition***

Larabee and similar soils—45 percent  
 Volstead and similar soils—40 percent  
 Contrasting inclusions—15 percent

### ***Setting***

*Landscape position:* Larabee—north-facing footslopes and concave backslopes;  
 Volstead—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Larabee—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part; Volstead—mixed loess and volcanic ash over colluvium and residuum derived from acidic tuff over basalt

*Elevation:* 2,800 to 4,600 feet

*Native plants:* Larabee—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica;  
 Volstead—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Larabee***

4 inches to 0—partially decomposed roots, moss, and twigs  
 0 to 12 inches—very dark brown silt loam  
 12 to 20 inches—very dark brown gravelly silt loam  
 20 to 36 inches—brown very cobbly loam  
 36 inches—basalt

### ***Properties and Qualities of Larabee***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Volstead***

1 inch to 0—needles, twigs, and logs  
 0 to 9 inches—dark reddish brown silt loam  
 9 to 13 inches—dark brown silt loam  
 13 to 23 inches—reddish brown silt loam  
 23 to 38 inches—brown gravelly clay loam  
 38 to 48 inches—brown gravelly clay  
 48 inches—basalt

### ***Properties and Qualities of Volstead***

*Depth to bedrock:* 40 to 60 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Klickson soils on footslopes and concave backslopes
- Getaway soils on footslopes and concave backslopes
- Tolo soils in V-shaped drainageways of backslopes

### ***Major Use***

Larabee and Volstead—timber production

### ***Major Management Limitations***

Larabee and Volstead—sheet and rill erosion, soil compaction, plant competition, puddling, dustiness  
 Larabee—cut and fill erosion, windthrow, seedling mortality  
 Volstead—soil displacement

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the Larabee soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Larabee soil to reduce soil loss from cut and fill slopes.
- Trees may be blown down when the Larabee soil is wet and winds are strong.
- The Volstead soil is susceptible to being pushed from its natural position during equipment operations.

## **179—Laufer-Thiessen complex, 2 to 15 percent slopes**

### ***Composition***

*Laufer and similar soils*—50 percent

*Thiessen and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Laufer—convex areas of summits; Thiessen—concave areas of summits

*Landform:* Canyons, structural benches

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,600 to 3,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Laufer***

0 to 4 inches—very dark brown very stony silt loam

4 to 8 inches—very dark brown very cobbly clay loam

8 to 11 inches—very dark brown very cobbly clay

11 to 16 inches—dark brown very cobbly clay

16 inches—basalt

### ***Properties and Qualities of Laufer***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High

### ***Typical Profile of Thiessen***

0 to 3 inches—very dark brown very cobbly silt loam

3 to 6 inches—dark brown very gravelly clay loam

6 to 14 inches—very dark brown very gravelly clay loam

14 to 23 inches—very dark brown very cobbly clay

23 to 34 inches—dark brown very cobbly clay

34 inches—basalt

### ***Properties and Qualities of Thiessen***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Watama soils on gentle, north-facing summits



- Rockly soils on summits and shoulders
- Areas of Rock outcrop scattered throughout

### ***Major Use***

Laufer and Thiessen—livestock grazing

### ***Major Management Limitations***

Laufer and Thiessen—permeability, available water capacity, water erosion,  
shrink-swell potential, depth to clayey layers

Laufer—depth to bedrock, stones on soil surface

Thiessen—cobble on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Laufer soil restricts the rooting depth.
- The shallow depth of the Laufer soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Laufer soil limits construction of water impoundments.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Laufer soil causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the soils may limit the success of seedlings and the choice of species for seedlings.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness of the Laufer soil.

## ***180—Laufer-Thiessen complex, 15 to 30 percent south slopes***

### ***Composition***

*Laufer and similar soils*—50 percent

*Thiessen and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Laufer—south-facing shoulders and convex backslopes;

Thiessen—south-facing footslopes and concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,600 to 4,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf  
balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Laufer***

0 to 4 inches—very dark brown very stony silt loam

4 to 8 inches—very dark brown very cobbly clay loam

8 to 11 inches—very dark brown very cobbly clay

11 to 16 inches—dark brown very cobbly clay  
 16 inches—basalt

### ***Properties and Qualities of Laufer***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Thiessen***

0 to 3 inches—very dark brown very cobbly silt loam  
 3 to 6 inches—dark brown very gravelly clay loam  
 6 to 14 inches—very dark brown very gravelly clay loam  
 14 to 23 inches—very dark brown very cobbly clay  
 23 to 34 inches—dark brown very cobbly clay  
 34 inches—basalt

### ***Properties and Qualities of Thiessen***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 6 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Gwin soils on shoulders and convex backslopes
- Rockly soils on summits and shoulders
- Rock outcrop on shoulders and backslopes
- Kettenbach soils on footslopes and concave backslopes

### ***Major Use***

Laufer and Thiessen—livestock grazing

### ***Major Management Limitations***

Laufer and Thiessen—permeability, available water capacity, water erosion, shrink-swell potential, depth to clayey layers  
 Laufer—depth to bedrock, stones on soil surface  
 Thiessen—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Laufer soil restricts the rooting depth.
- The shallow depth of the Laufer soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Laufer soil limits construction of water impoundments.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Laufer soil causes a change in the range site and a loss in the potential for forage production.

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness limits the success of seedings and the choice of species for range seedings.
- The very stony upper layer of the Laufer soil restricts the operation of ground seeding equipment.

### ***181—Laufer-Thiessen complex, 30 to 60 percent south slopes***

#### ***Composition***

*Laufer and similar soils*—45 percent

*Thiessen and similar soils*—40 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Laufer—south-facing convex backslopes; Thiessen—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,600 to 4,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile of Laufer***

0 to 4 inches—very dark brown very stony silt loam

4 to 8 inches—very dark brown very cobbly clay loam

8 to 11 inches—very dark brown very cobbly clay

11 to 16 inches—dark brown very cobbly clay

16 inches—basalt

#### ***Properties and Qualities of Laufer***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

#### ***Typical Profile of Thiessen***

0 to 3 inches—very dark brown very cobbly silt loam

3 to 6 inches—dark brown very gravelly clay loam

6 to 14 inches—very dark brown very gravelly clay loam

14 to 23 inches—very dark brown very cobbly clay

23 to 34 inches—dark brown very cobbly clay

34 inches—basalt

### ***Properties and Qualities of Thiessen***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Gwin soils on convex backslopes
- Rockly soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Kettenbach soils on concave backslopes

### ***Major Use***

Laufer and Thiessen—livestock grazing

### ***Major Management Limitations***

Laufer and Thiessen—slope, water erosion, permeability, available water capacity, shrink-swell potential, depth to clayey layers

Laufer—depth to bedrock, stones on soil surface

Thiessen—cobbles on soil surface

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Erosion of the easily disturbed surface layer of the Laufer soil causes a change in the range site and a loss in the potential for forage production.
- The bedrock in the Laufer soil restricts the rooting depth.
- The shallow depth of the Laufer soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## ***182—Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes***

### ***Composition***

*Laufer and similar soils*—40 percent

*Thiessen and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Laufer—south-facing convex backslopes; Thiessen—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,600 to 4,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Laufer***

0 to 4 inches—very dark brown very stony silt loam

4 to 8 inches—very dark brown very cobbly clay loam

8 to 11 inches—very dark brown very cobbly clay

11 to 16 inches—dark brown very cobbly clay

16 inches—basalt

### ***Properties and Qualities of Laufer***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Thiessen***

0 to 3 inches—very dark brown very cobbly silt loam

3 to 6 inches—dark brown very gravelly clay loam

6 to 14 inches—very dark brown very gravelly clay loam

14 to 23 inches—very dark brown very cobbly clay

23 to 34 inches—dark brown very cobbly clay

34 inches—basalt

### ***Properties and Qualities of Thiessen***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Gwin soils on convex backslopes
- Rockly soils on convex backslopes
- Kettenbach soils on concave backslopes

### ***Major Use***

Laufer and Thiessen—livestock grazing

### ***Major Management Limitations***

Laufer, Thiessen, and Rock outcrop—slope

Laufer and Thiessen—water erosion, permeability, available water capacity, shrink-swell potential, depth to clayey layers

Laufer—depth to bedrock, stones on soil surface

Thiessen—cobbles on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Erosion of the easily disturbed surface layer of the Laufer soil causes a change in the range site and a loss in the potential for forage production.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Laufer soil restricts the rooting depth.
- The shallow depth of the Laufer soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

### ***183—Lawyer-Gwinly complex, 40 to 90 percent north slopes***

#### ***Composition***

*Lawyer, stony, and similar inclusions—30 percent*

*Lawyer and similar soils—25 percent*

*Gwinly and similar soils—25 percent*

*Contrasting inclusions—20 percent*

#### ***Setting***

*Landscape position:* Lawyer, stony, and Lawyer—north-facing concave backslopes;

Gwinly—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,400 to 3,200 feet

*Native plants:* Lawyer, stony, and Lawyer—Idaho fescue, bluebunch wheatgrass, common snowberry, rose, Saskatoon serviceberry, mallow ninebark; Gwinly—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile of Lawyer, Stony***

0 to 4 inches—black stony silt loam

4 to 11 inches—black gravelly silt loam

11 to 16 inches—very dark brown gravelly clay loam

16 to 23 inches—very dark grayish brown very gravelly clay loam

23 to 35 inches—very dark grayish brown very cobbly clay loam

35 to 44 inches—dark brown very cobbly clay

44 inches—basalt

***Properties and Qualities of Lawyer, Stony***

*Depth to bedrock:* 40 to 60 inches  
*Depth to clayey layers:* 35 to 52 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

***Typical Profile of Lawyer***

0 to 4 inches—black silt loam  
4 to 11 inches—black gravelly silt loam  
11 to 16 inches—very dark brown gravelly clay loam  
16 to 23 inches—very dark grayish brown very gravelly clay loam  
23 to 35 inches—very dark grayish brown very cobbly clay loam  
35 to 44 inches—dark brown very cobbly clay  
44 inches—basalt

***Properties and Qualities of Lawyer***

*Depth to bedrock:* 40 to 60 inches  
*Depth to clayey layers:* 35 to 52 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very stony silt loam  
4 to 10 inches—dark brown very cobbly silty clay loam  
10 to 17 inches—dark yellowish brown extremely cobbly clay  
17 inches—basalt

***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

***Contrasting Inclusions***

- Mallory soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Bridgewater soils on adjacent flood plains and alluvial fans at the base of canyon backslopes

***Major Use***

Lawyer, stony; Lawyer; and Gwinly—livestock grazing

***Major Management Limitations***

Lawyer, stony; Lawyer; and Gwinly—slope, water erosion



Gwinly—depth to bedrock, depth to clayey layers, available water capacity, water erosion, shrink-swell potential, very stony soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The clayey lower layers in the Gwinly soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Gwinly soil causes a change in the range site and a loss in the potential for forage production.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.

## ***184—Lickskillet-Dixiejett-Rock outcrop complex, 60 to 90 percent south slopes***

### ***Composition***

*Lickskillet and similar soils*—40 percent

*Dixiejett and similar soils*—25 percent

*Rock outcrop*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Lickskillet—south-facing convex middle backslopes; Dixiejett—south-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes

*Landform:* Canyons

*Parent material:* Colluvium over residuum derived from basalt

*Elevation:* 2,800 to 4,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 20 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Lickskillet***

0 to 7 inches—very dark grayish brown very cobbly loam

7 to 19 inches—brown extremely cobbly loam

19 inches—Imnaha basalt

### ***Properties and Qualities of Lickskillet***

*Depth to bedrock:* 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Dixiejett***

0 to 6 inches—very dark grayish brown gravelly loam  
6 to 10 inches—very dark grayish brown very gravelly loam  
10 to 18 inches—dark brown very gravelly loam  
18 to 27 inches—brown very gravelly clay loam  
27 to 43 inches—dark yellowish brown extremely gravelly loam  
43 inches—basalt

### ***Properties and Qualities of Dixiejett***

*Depth to bedrock:* 40 to 60 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Rockly soils on backslopes near areas of Rock outcrop
- Tannahill soils on lower backslopes
- Schuelke soils on middle backslopes

### ***Major Use***

Lickskillet and Dixiejett—livestock grazing

### ***Major Management Limitations***

Lickskillet, Dixiejett, and Rock outcrop—slope  
Lickskillet and Dixiejett—water erosion  
Lickskillet—depth to bedrock, available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Lickskillet soil restricts the rooting depth.
- The shallow depth of the Lickskillet soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Lickskillet soil causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the Lickskillet soil may limit the success of seedings and the choice of species for seedings.

## ***185—Lickskillet-Doublecreek-Rockly complex, 2 to 15 percent slopes***

### ***Composition***

*Lickskillet and similar soils*—40 percent  
*Doublecreek and similar soils*—25 percent  
*Rockly and similar soils*—20 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Lickskillet—slightly tilted convex summits; Doublecreek—slightly tilted concave summits; Rockly—slightly tilted convex summits

*Landform:* Plateaus, structural benches

*Parent material:* Lickskillet—colluvium and residuum derived from basalt; Doublecreek—mixed loess and colluvium derived from basalt with a minor influence of volcanic ash; Rockly—loess and colluvium derived from basalt

*Elevation:* 2,800 to 3,400 feet

*Native plants:* Lickskillet and Doublecreek—Idaho fescue, bluebunch wheatgrass; Rockly—Sandberg bluegrass, bluebunch wheatgrass, onespice oatgrass, stiff sagebrush

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Lickskillet***

0 to 7 inches—very dark grayish brown very cobbly loam

7 to 19 inches—brown extremely cobbly loam

19 inches—Imnaha basalt

### ***Properties and Qualities of Lickskillet***

*Depth to bedrock:* 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Doublecreek***

0 to 4 inches—black silt loam

4 to 10 inches—very dark brown silt loam

10 to 16 inches—very dark grayish brown silt loam

16 to 22 inches—dark brown cobbly loam

22 to 61 inches—brown cobbly fine sandy loam

### ***Properties and Qualities of Doublecreek***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam

3 to 7 inches—dark brown extremely cobbly loam

7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Rock outcrop consisting of horizontal layers of exposed bedrock on shoulders
- Dixiejett soils on footslopes
- Schuelke soils on middle backslopes

### ***Major Use***

Lickskillet, Doublecreek, and Rockly—livestock grazing

### ***Major Management Limitations***

Lickskillet and Rockly—depth to bedrock, water erosion, available water capacity  
Doublecreek—none

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Lickskillet and Rockly soils restricts the rooting depth.
- The shallow depth of the Lickskillet and Rockly soils limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Lickskillet and Rockly soils limits construction of water impoundments.
- Erosion of the easily disturbed surface layer of the Lickskillet and Rockly soils causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the Lickskillet and Rockly soils may limit the success of seedings and the choice of species for seedings.

## ***186—Lickskillet-Doublecreek-Rockly complex, 15 to 30 percent south slopes***

### ***Composition***

*Lickskillet and similar soils*—30 percent

*Doublecreek and similar soils*—30 percent

*Rockly and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Lickskillet—south-facing convex middle backslopes;  
Doublecreek—south-facing footslopes and concave backslopes; Rockly—  
south-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Lickskillet—colluvium and residuum derived from basalt;  
Doublecreek—mixed loess and colluvium derived from basalt with a  
minor influence of volcanic ash; Rockly—loess and colluvium derived from  
basalt

*Elevation:* 2,800 to 4,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf  
balsamroot

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Lickskillet***

0 to 7 inches—very dark grayish brown very cobbly loam

7 to 19 inches—brown extremely cobbly loam

19 inches—Imnaha basalt

### ***Properties and Qualities of Lickskillet***

*Depth to bedrock:* 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Doublecreek***

0 to 4 inches—black silt loam

4 to 10 inches—very dark brown silt loam

10 to 16 inches—very dark grayish brown silt loam

16 to 22 inches—dark brown cobbly loam

22 to 61 inches—brown cobbly fine sandy loam

### ***Properties and Qualities of Doublecreek***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam

3 to 7 inches—dark brown extremely cobbly loam

7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes and shoulders
- Tannahill and Dixiejett soils on footslopes and convex backslopes
- Schuelke soils on middle backslopes

### ***Major Use***

Lickskillet, Doublecreek, and Rockly—livestock grazing

### ***Major Management Limitations***

Lickskillet, Doublecreek, and Rockly—water erosion

Lickskillet and Rockly—depth to bedrock, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Lickskillet and Rockly soils restricts the rooting depth.

- The shallow depth of the Lickskillet and Rockly soils limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Lickskillet and Rockly soils limits construction of water impoundments.
- Erosion of the easily disturbed surface layer of the Lickskillet and Rockly soils causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the Lickskillet and Rockly soils may limit the success of seedings and the choice of species for seedings.

### **187—Limberjim silt loam, 2 to 15 percent slopes**

#### ***Composition***

*Limberjim and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Slightly concave summits

*Landform:* Plateaus, structural benches

*Parent material:* Volcanic ash over colluvium and residuum derived from basalt and andesitic tuff breccia

*Elevation:* 4,700 to 5,800 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### ***Typical Profile***

1 inch to 0—partially decomposed twigs and small branches

0 to 15 inches—dark yellowish brown silt loam

15 to 20 inches—dark yellowish brown gravelly silt loam

20 to 41 inches—dark yellowish brown very cobbly clay loam

41 inches—basalt

#### ***Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 28 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Slight or moderate

#### ***Contrasting Inclusions***

- Syrupcreek soils on shoulders and convex backslopes
- Minam soils on adjacent lower fan terraces
- Ferguson soils on adjacent moraines

#### ***Major Use***

Timber production

### ***Major Management Limitations***

Soil compaction, dustiness, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***188—Limberjim-Anatone complex, 30 to 60 percent north slopes***

### ***Composition***

*Limberjim and similar soils*—50 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Limberjim—north-facing concave backslopes; Anatone—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Limberjim—volcanic ash over colluvium and residuum derived from basalt and andesitic tuff breccia; Anatone—loess and colluvium derived from basalt

*Elevation:* 4,700 to 5,400 feet

*Native plants:* Limberjim—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Limberjim***

1 inch to 0—partially decomposed twigs and small branches

0 to 15 inches—dark yellowish brown silt loam

15 to 20 inches—dark yellowish brown gravelly silt loam

20 to 41 inches—dark yellowish brown very cobbly clay loam

41 inches—basalt

### ***Properties and Qualities of Limberjim***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 28 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* Moderate



### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
3 to 6 inches—very dark grayish brown very cobbly silt loam  
6 to 12 inches—dark brown very cobbly silty clay loam  
12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tamara soils on concave backslopes
- Syrupcreek soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Flyvalley soils on convex backslopes
- Btree soils on concave backslopes

### ***Major Uses***

Limberjim—timber production  
Anatone—livestock grazing

### ***Major Management Limitations***

Limberjim and Anatone—slope, water erosion  
Limberjim—equipment operability, cut and fill erosion, soil compaction, soil displacement, plant competition, sheet and rill erosion, dustiness  
Anatone—depth to bedrock, surface stones, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are soft when wet.

- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **189—Limberjim-Syrupcreek complex, 15 to 30 percent north slopes**

#### **Composition**

*Limberjim and similar soils*—60 percent

*Syrupcreek and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Limberjim—north-facing footslopes and concave backslopes;  
Syrupcreek—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Limberjim—volcanic ash over colluvium and residuum derived from basalt and andesitic tuff breccia; Syrupcreek—volcanic ash and loess over residuum and colluvium derived from basalt and andesitic tuff breccia

*Elevation:* 4,500 to 5,400 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### **Typical Profile of Limberjim**

1 inch to 0—partially decomposed twigs and small branches

0 to 15 inches—dark yellowish brown silt loam

15 to 20 inches—dark yellowish brown gravelly silt loam

20 to 41 inches—dark yellowish brown very cobbly clay loam

41 inches—basalt

#### **Properties and Qualities of Limberjim**

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 28 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

#### **Typical Profile of Syrupcreek**

1 inch to 0—partially decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 22 inches—dark brown very cobbly loam

22 to 28 inches—dark brown very stony clay loam

28 inches—basalt

#### **Properties and Qualities of Syrupcreek**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Btree soils on footslopes and concave backslopes
- Flycreek soils on middle backslopes
- Flyvalley soils on shoulders and convex backslopes
- Tamara soils on footslopes and concave backslopes

### ***Major Use***

Limberjim and Syrupcreek—timber production

### ***Major Management Limitations***

Limberjim and Syrupcreek—soil compaction, water erosion, dustiness, cut and fill erosion, plant competition

Syrupcreek—corrosivity, windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Because of the depth to bedrock, trees on the Syrupcreek soil may be blown down when the soil is wet and winds are strong.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails on hillsides are soft when wet because of the silt loam lower layers and insufficient rock in the lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***190—Limberjim-Syrupcreek complex, 30 to 60 percent north slopes***

### ***Composition***

*Limberjim and similar soils*—70 percent

*Syrupcreek and similar soils*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Limberjim—north-facing concave backslopes; Syrupcreek—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Limberjim—volcanic ash over colluvium and residuum derived from basalt and andesitic tuff breccia; Syrupcreek—volcanic ash and loess over residuum and colluvium derived from basalt and andesitic tuff breccia

*Elevation:* 4,500 to 5,400 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

***Typical Profile of Limberjim***

1 inch to 0—partially decomposed twigs and small branches

0 to 15 inches—dark yellowish brown silt loam

15 to 20 inches—dark yellowish brown gravelly silt loam

20 to 41 inches—dark yellowish brown very cobbly clay loam

41 inches—basalt

***Properties and Qualities of Limberjim***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 28 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

***Typical Profile of Syrupcreek***

1 inch to 0—partially decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 22 inches—dark brown very cobbly loam

22 to 28 inches—dark brown very stony clay loam

28 inches—basalt

***Properties and Qualities of Syrupcreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Btree soils on concave backslopes
- Flycreek soils on middle backslopes
- Flyvalley soils on convex backslopes
- Tamara soils on concave backslopes

***Major Use***

Limberjim and Syrupcreek—timber production

***Major Management Limitations***

Limberjim and Syrupcreek—soil compaction, water erosion, dustiness, cut and fill erosion, plant competition

Syrupcreek—corrosivity, windthrow

***General Management Considerations*****Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Because of the depth to bedrock, trees on the Syrupcreek soil may be blown down when the soil is wet and winds are strong.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## **191—Limberjim-Tamara complex, 0 to 15 percent slopes**

### ***Composition***

*Limberjim and similar soils*—45 percent

*Tamara and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Limberjim—footslopes, generally adjacent to the stream channel or near a source of rock fragments; Tamara—footslopes

*Landform:* Plateaus

*Parent material:* Limberjim—volcanic ash over colluvium and residuum derived from basalt or andesitic tuff breccia; Tamara—volcanic ash over a mixture of loess, colluvium, and residuum derived from basalt

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Limberjim***

1 inch to 0—partially decomposed twigs and small branches

0 to 15 inches—dark yellowish brown silt loam

15 to 20 inches—dark yellowish brown gravelly silt loam

20 to 41 inches—dark yellowish brown very cobbly clay loam

41 inches—basalt

### ***Properties and Qualities of Limberjim***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 28 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Tamara***

1 inch to 0—partially decomposed leaves, needles, and twigs

0 to 4 inches—dark brown silt loam

4 to 15 inches—dark yellowish brown silt loam

15 to 30 inches—brown silt loam

30 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tamara***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 35 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 13 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Syrupcreek soils on footslopes near streams
- Harl soils on footslopes near streams

### ***Major Use***

Limberjim and Tamara—timber production

### ***Major Management Limitations***

Limberjim and Tamara—soil compaction, plant competition, puddling, dustiness

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Frost pockets damage seedlings that are not frost tolerant.

## ***192—Linecreek-Getaway complex, 60 to 90 percent north slopes***

### ***Composition***

*Linecreek and similar soils*—55 percent

*Getaway and similar soils*—35 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Linecreek—north-facing concave backslopes and V-shaped drainageways; Getaway—north-facing convex upper backslopes

*Landform:* Canyons

*Parent material:* Linecreek—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part; Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Linecreek—Douglas fir, ponderosa pine, ninebark; Getaway—Douglas fir, ponderosa pine, western larch, ninebark

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam  
9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam  
22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam  
35 to 50 inches—yellowish brown extremely cobbly fine sandy loam  
50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Very severe

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs  
0 to 13 inches—very dark brown cobbly silt loam  
13 to 48 inches—dark brown very cobbly silty clay loam  
48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Anatone and Harlow soils on convex backslopes
- Snell soils on convex backslopes
- Olot soils on middle backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Klickson soils on concave backslopes

### ***Major Use***

Linecreek and Getaway—timber production

### ***Major Management Limitations***

Linecreek and Getaway—slope, equipment operability, water erosion, cut and fill erosion, soil displacement, plant competition, fire damage, dustiness  
Getaway—cobbles on soil surface, soil compaction, seedling mortality

### ***General Management Considerations***

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the Getaway soil, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The soils are susceptible to being pushed from their natural position during equipment operations.



- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Unsurfaced roads in areas of the Getaway soil on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails on the Getaway soil are dusty when dry.
- Surface rock fragments on the Linecreek soil make tree planting difficult.
- Unsurfaced roads on the Linecreek soil are firm when wet.
- Unsurfaced roads and skid trails on the Linecreek soil are very dusty when dry because of the surface volcanic ash.

### **193—Lookingglass silt loam, 2 to 8 percent slopes**

#### ***Composition***

*Lookingglass and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: Central part of summits

*Landform*: Plateaus, structural benches

*Parent material*: Loess with a minor influence of volcanic ash over clayey residuum and colluvium derived from basalt

*Elevation*: 2,400 to 3,400 feet

*Native plants*: Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile***

0 to 8 inches—very dark grayish brown silt loam

8 to 22 inches—dark brown silt loam

22 to 23 inches—grayish brown silty clay loam

23 to 30 inches—dark brown clay

30 to 42 inches—brown clay

42 to 60 inches—brown silty clay loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to claypan*: 12 to 30 inches

*Drainage class*: Moderately well drained

*Depth to water table (perched)*: 1.5 to 3.0 feet in March through April

*Permeability*: Very slow

*Available water capacity*: About 10 inches

*Hazard of erosion*: Slight or moderate

*Shrink-swell potential*: High in the claypan

*Corrosivity to uncoated steel*: Moderate

***Contrasting Inclusions***

- Rockly soils in gullies
- Sopher soils on summits near fault breaks

***Major Uses***

Nonirrigated cropland, timber production, homesites

***Major Management Limitations***

High water table, permeability, shrink-swell potential, water erosion, soil compaction, corrosivity, depth to claypan, plant competition

***General Management Considerations*****Nonirrigated cropland**

- The claypan expands when wet and contracts when dry, which can damage plant roots.
- Grazing when the soil is wet results in compaction of the upper layer and poor tilth.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- The seasonal high water table provides supplemental moisture for plants.

**Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

**Homesites**

- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- Septic tank absorption fields may function poorly because of the limited permeability, which restricts the movement and filtration of the effluent.
- Because of the slowly permeable lower layers, special design of absorption lines may be needed.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Septic tank absorption fields may function poorly because of wetness late in winter and in spring.
- The lower layers may be too clayey to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are dusty when dry.

***194—Lookingglass silt loam, 8 to 15 percent slopes******Composition***

*Lookingglass and similar soils*—85 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position*: Central part of summits

*Landform*: Plateaus, structural benches

*Parent material:* Loess with a minor influence of volcanic ash over clayey residuum or colluvium derived from basalt

*Elevation:* 2,400 to 3,400 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 8 inches—very dark grayish brown silt loam

8 to 22 inches—dark brown silt loam

22 to 23 inches—grayish brown silty clay loam

23 to 30 inches—dark brown clay

30 to 42 inches—brown clay

42 to 60 inches—brown silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 12 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 3.0 feet in March through April

*Permeability:* Very slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High in the claypan

*Corrosivity to uncoated steel:* Moderate

### ***Contrasting Inclusions***

- Rockly soils in gullies
- Sopher soils on summits near fault blocks

### ***Major Uses***

Nonirrigated cropland, timber production, homesites

### ***Major Management Limitations***

High water table, water erosion, permeability, soil compaction, shrink-swell potential, corrosivity, depth to claypan, seedling mortality, plant competition

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The claypan expands when wet and contracts when dry, which can damage plant roots.
- Grazing when the soil is wet results in compaction of the upper layer, poor tilth, and excessive runoff.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- The seasonal high water table provides supplemental moisture for plants.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.

- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the limited permeability, which restricts the movement and filtration of the effluent.
- Septic tank absorption fields may function poorly because of wetness late in winter and in spring.
- Because of the slowly permeable lower layers, special design of absorption lines may be needed.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Cutbanks are not stable and therefore are subject to slumping.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The steepness of slope may make special design of absorption lines necessary.
- Disturbed areas are subject to soil erosion.
- The steepness of slope may make special design of buildings and access roads necessary.
- Unsurfaced roads are dusty when dry.
- The lower layers may be too clayey to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

### ***195—Lookingglass stony silt loam, 2 to 15 percent slopes***

#### ***Composition***

*Lookingglass, stony, and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Gently sloping summits between multiple small fault blocks

*Landform:* Plateaus, structural benches

*Parent material:* Loess with a minor influence of volcanic ash over clayey residuum or colluvium derived from basalt

*Elevation:* 2,400 to 3,400 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile***

0 to 8 inches—very dark grayish brown stony silt loam

8 to 22 inches—dark brown silt loam

22 to 23 inches—grayish brown silty clay loam

23 to 30 inches—dark brown clay

30 to 42 inches—brown clay

42 to 60 inches—brown silty clay loam

#### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 12 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 3.0 feet in March through April

*Permeability:* Very slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High in the claypan

*Corrosivity to uncoated steel:* Moderate

### ***Contrasting Inclusions***

- Gwinly soils on shoulders
- Sopher soils on summits near fault blocks

### ***Major Uses***

Nonirrigated cropland, timber production, homesites

### ***Major Management Limitations***

Perched water table in spring, water erosion, stones on soil surface, permeability, soil compaction, shrink-swell potential, corrosivity, depth to claypan, seedling mortality, plant competition

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The claypan expands when wet and contracts when dry, which can damage plant roots.
- Grazing when the soil is wet results in compaction of the upper layer, poor tilth, and excessive runoff.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- The seasonal high water table provides supplemental moisture for plants.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the limited permeability, which restricts the movement and filtration of the effluent.
- Septic tank absorption fields may function poorly because of wetness late in winter and in spring.
- Because of the slowly permeable lower layers, special design of absorption lines may be needed.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Cutbanks are not stable and therefore are subject to slumping.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The steepness of slope may make special design of absorption lines necessary.
- Disturbed areas are subject to soil erosion.

- The steepness of slope may make special design of buildings and access roads necessary.
- Unsurfaced roads are dusty when dry.
- The lower layers may be too clayey to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Excavation is hampered by the stones in the soil.
- Stones and cobbles on the surface make construction of roads difficult.

## **196—Lookingglass complex, 2 to 30 percent south slopes**

### ***Composition***

*Lookingglass, cobbly, and similar soils*—60 percent

*Lookingglass silt loam and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Lookingglass, cobbly—south-facing backslopes of fault blocks;

Lookingglass silt loam—gently sloping summits between steeper fault blocks

*Landform:* Plateaus, structural benches

*Parent material:* Loess with a minor influence of volcanic ash over clayey colluvium and residuum derived from basalt

*Slope range:* Lookingglass, cobbly—15 to 30 percent; Lookingglass silt loam—2 to 15 percent

*Elevation:* 2,400 to 4,000 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Lookingglass, Cobbly***

0 to 8 inches—very dark grayish brown cobbly silt loam

8 to 22 inches—dark brown silt loam

22 to 23 inches—grayish brown silty clay loam

23 to 30 inches—dark brown clay

30 to 42 inches—brown clay

42 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Lookingglass, Cobbly***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 12 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 3.0 feet in March through April

*Permeability:* Very slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

*Corrosivity to uncoated steel:* High

### ***Typical Profile of Lookingglass Silt Loam***

0 to 8 inches—very dark grayish brown silt loam

8 to 22 inches—dark brown silt loam

22 to 23 inches—grayish brown silty clay loam

23 to 30 inches—dark brown clay

30 to 42 inches—brown clay

42 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Lookingglass Silt Loam***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 12 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 2.5 feet in March through April

*Permeability:* Very slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Rock outcrop on short headwalls
- Tolo soils on footslopes
- Sopher soils on summits and backslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Lookingglass, cobbly, and Lookingglass silt loam—sheet and rill erosion, soil compaction, seedling mortality, plant competition, puddling, dustiness, depth to claypan, shrink-swell potential

Lookingglass, cobbly—water erosion

Lookingglass silt loam—snowmelt

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***197—Lookingglass-Sopher complex, 2 to 30 percent north slopes***

### ***Composition***

*Lookingglass and similar soils*—65 percent

*Sopher and similar soils*—20 percent

*Contrasting inclusions*—15 percent



### ***Setting***

*Landscape position:* Lookingglass—gentle backslopes between fault blocks;

Sopher—short north-facing backslopes of fault blocks

*Landform:* Plateaus

*Parent material:* Lookingglass—loess with a minor influence of volcanic ash over clayey colluvium or residuum derived from basalt; Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt

*Slope range:* Lookingglass—2 to 15 percent; Sopher—15 to 30 percent

*Elevation:* 1,800 to 3,400 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Lookingglass***

0 to 8 inches—very dark grayish brown silt loam

8 to 22 inches—dark brown silt loam

22 to 23 inches—grayish brown silty clay loam

23 to 30 inches—dark brown clay

30 to 42 inches—brown clay

42 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Lookingglass***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 12 to 30 inches

*Drainage class:* Moderately well drained

*Depth to water table (perched):* 1.5 to 3.0 feet in March through April

*Permeability:* Very slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles

0 to 2 inches—very dark grayish brown stony loam

2 to 8 inches—dark brown gravelly loam

8 to 18 inches—brown gravelly clay loam

18 to 24 inches—brown very gravelly clay

24 to 44 inches—brown very gravelly clay

44 inches—basalt

### ***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Gwin and Gwinly soils on shoulders adjacent to fault blocks
- Emily soils on north-facing footslopes

### ***Major Uses***

Lookingglass and Sopher—timber production

Lookingglass—nonirrigated cropland

### ***Major Management Limitations***

Lookingglass and Sopher—soil compaction, permeability, shrink-swell potential, seedling mortality, plant competition, dustiness

Lookingglass—water erosion, seasonal high water table, depth to claypan

Sopher—equipment operability, fire damage, depth to clayey layers

### ***General Management Considerations***

#### **Nonirrigated cropland**

- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- A tillage pan forms easily if the soil is excessively cultivated.
- Very slow permeability and slope increase the risk of runoff of irrigation water.

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Because the soils are hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity on the Sopher soil may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads and skid trails on the Sopher soil are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails on the Lookingglass soil are dusty when dry.

## ***198—Lookingglass-Sopher complex, 2 to 30 percent south slopes***

### ***Composition***

*Lookingglass and similar soils*—65 percent

*Sopher and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Lookingglass—gentle backslopes between fault blocks;  
Sopher—south-facing backslopes of fault blocks

*Landform:* Plateaus

*Parent material:* Lookingglass—loess with a minor influence of volcanic ash over clayey colluvium or residuum derived from basalt; Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt

*Slope range:* Lookingglass—2 to 15 percent; Sopher—15 to 30 percent

*Elevation:* 1,800 to 3,400 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches  
 Mean annual air temperature—45 to 50 degrees F  
 Frost-free period—100 to 120 days

***Typical Profile of Lookingglass***

0 to 8 inches—very dark grayish brown silt loam  
 8 to 22 inches—dark brown silt loam  
 22 to 23 inches—grayish brown silty clay loam  
 23 to 30 inches—dark brown clay  
 30 to 42 inches—brown clay  
 42 to 60 inches—brown silty clay loam

***Properties and Qualities of Lookingglass***

*Depth to bedrock:* More than 60 inches  
*Depth to claypan:* 12 to 30 inches  
*Drainage class:* Moderately well drained  
*Depth to water table (perched):* 1.5 to 3.0 feet in March through April  
*Permeability:* Very slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Moderate  
*Shrink-swell potential:* High in the claypan

***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles  
 0 to 2 inches—very dark grayish brown stony loam  
 2 to 8 inches—dark brown gravelly loam  
 8 to 18 inches—brown gravelly clay loam  
 18 to 24 inches—brown very gravelly clay  
 24 to 44 inches—brown very gravelly clay  
 44 inches—basalt

***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

***Contrasting Inclusions***

- Gwin and Gwinly soils on shoulders adjacent to fault blocks

***Major Uses***

Lookingglass and Sopher—timber production  
 Lookingglass—nonirrigated cropland

***Major Management Limitations***

Lookingglass and Sopher—soil compaction, permeability, shrink-swell potential, seedling mortality, plant competition, dustiness  
 Lookingglass—water erosion, seasonal high water table, depth to claypan  
 Sopher—equipment operability, fire damage, depth to clayey layers

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The claypan in the soil expands when wet and contracts when dry, which can damage plant roots.
- Grazing when the soil is wet results in compaction of the upper layer, poor tilth, and excessive runoff.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Because the soils are hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity on the Sopher soil may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads and skid trails on the Sopher soil are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails on the Lookingglass soil are dusty when dry.

### ***199—Lostine silt loam, 0 to 3 percent slopes***

#### ***Composition***

*Lostine and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Nearly level stream terraces that are several miles downstream from the moraine

*Landform:* Broad outwash plains

*Parent material:* Glaciofluvial outwash mixed with loess and minor amounts of volcanic ash

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue, Letterman needlegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 23 inches—very dark grayish brown silt loam

23 to 47 inches—dark yellowish brown silt loam

47 to 60 inches—brown and light yellowish brown silt loam

60 to 65 inches—variegated very gravelly sandy loam

#### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 11 inches

*Hazard of erosion:* Slight

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Sturgill soils in depressions of adjacent flood plains
- Endoaquolls in drainageways or other concave positions
- Tolo soils on adjacent toeslopes
- Freels soils on adjacent low stream terraces

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitation***

Frost heaving

### ***General Management Considerations***

#### **Irrigated cropland**

- Other than climate, this soil has few limitations for this use.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Unsurfaced roads are dusty when dry.

## ***200—Mallory-Gwinly-Lawyer complex, 15 to 30 percent north slopes***

### ***Composition***

*Mallory and similar soils*—35 percent

*Gwinly and similar soils*—25 percent

*Lawyer and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Mallory—north-facing middle backslopes; Gwinly—north-facing shoulders and convex backslopes; Lawyer—north-facing footslopes and concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,000 to 2,800 feet

*Native plants:* Mallory—Idaho fescue, bluebunch wheatgrass; Gwinly—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Lawyer—Idaho fescue, bluebunch wheatgrass, common snowberry, rose

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam

8 to 11 inches—dark brown very cobbly clay loam

11 to 26 inches—dark reddish brown extremely cobbly clay  
 26 inches—basalt

### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
 4 to 10 inches—dark brown very cobbly silty clay loam  
 10 to 17 inches—dark yellowish brown extremely cobbly clay  
 17 inches—fractured basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Lawyer***

0 to 4 inches—black stony silt loam  
 4 to 11 inches—black gravelly silt loam  
 11 to 16 inches—very dark brown very gravelly clay loam  
 16 to 23 inches—very dark grayish brown very gravelly clay loam  
 23 to 35 inches—very dark grayish brown very cobbly clay loam  
 35 to 44 inches—dark brown very cobbly clay  
 44 inches—basalt

### ***Properties and Qualities of Lawyer***

*Depth to bedrock:* 40 to 60 inches  
*Depth to clayey layers:* 35 to 52 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Demasters soils on footslopes and concave backslopes
- Rock outcrop on shoulders and backslopes
- Rockly soils on shoulders and convex backslopes adjacent to areas of Rock outcrop

### ***Major Use***

Mallory, Gwinly, and Lawyer—livestock grazing

### ***Major Management Limitations***

Mallory, Gwinly, and Lawyer—water erosion

Mallory and Gwinly—depth to clayey layers, shrink-swell potential, available water capacity

Mallory—very stony soil surface

Gwinly—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The clayey lower layers in the Gwinly and Mallory soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Droughtiness of the Mallory and Gwinly soils may limit the success of seedings and the choice of species for seedings.
- Livestock tend to graze in the less stony areas.
- The very stony upper layer of the Mallory soil restricts the operation of ground seeding equipment.
- Seeding areas of the Mallory soil that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Gwinly soil limits construction of water impoundments.
- Erosion of the easily disturbed surface layer of the Gwinly soil causes a change in the range site and a loss in the potential for forage production.

## ***201—Mallory-Gwinly-Lawyer complex, 30 to 60 percent north slopes***

### ***Composition***

*Mallory and similar soils*—35 percent

*Gwinly and similar soils*—25 percent

*Lawyer and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Mallory—north-facing middle backslopes; Gwinly—north-facing convex backslopes; Lawyer—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,000 to 2,800 feet

*Native plants:* Mallory—Idaho fescue, bluebunch wheatgrass; Gwinly—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Lawyer—Idaho fescue, bluebunch wheatgrass, common snowberry, rose

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days



### ***Typical Profile of Mallory***

0 to 8 inches—very dark brown very stony silt loam  
 8 to 11 inches—dark brown very cobbly clay loam  
 11 to 26 inches—dark reddish brown extremely cobbly clay  
 26 inches—basalt

### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam  
 4 to 10 inches—dark brown very cobbly silty clay loam  
 10 to 17 inches—dark yellowish brown extremely cobbly clay  
 17 inches—fractured basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Lawyer***

0 to 4 inches—black stony silt loam  
 4 to 11 inches—black gravelly silt loam  
 11 to 16 inches—very dark brown very gravelly clay loam  
 16 to 23 inches—very dark grayish brown very gravelly clay loam  
 23 to 35 inches—very dark grayish brown very cobbly clay loam  
 35 to 44 inches—dark brown very cobbly clay  
 44 inches—basalt

### ***Properties and Qualities of Lawyer***

*Depth to bedrock:* 40 to 60 inches  
*Depth to clayey layers:* 35 to 52 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Demasters soils on concave backslopes
- Rock outcrop on convex backslopes
- Rockly soils on convex backslopes adjacent to areas of Rock outcrop

**Major Use**

Mallory, Gwinly, and Lawyer—livestock grazing

**Major Management Limitations**

Mallory, Gwinly, and Lawyer—water erosion, slope

Mallory and Gwinly—depth to clayey layers, shrink-swell potential, available water capacity

Mallory—very stony soil surface

Gwinly—depth to bedrock

**General Management Considerations****Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The bedrock in the Gwinly soil restricts the rooting depth.
- The shallow depth of the Gwinly soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Gwinly soil causes a change in the range site and a loss in the potential for forage production.

**202—Mallory-Lawyer-Rock outcrop complex, 60 to 90 percent north slopes****Composition**

Mallory and similar soils—40 percent

Lawyer and similar soils—35 percent

Rock outcrop—10 percent

Contrasting inclusions—15 percent

**Setting**

*Landscape position:* Mallory—north-facing convex backslopes; Lawyer—north-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,000 to 2,800 feet

*Native plants:* Mallory—Idaho fescue, bluebunch wheatgrass; Lawyer—Idaho fescue, bluebunch wheatgrass, common snowberry, rose

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

**Typical Profile of Mallory**

0 to 8 inches—very dark brown very stony silt loam

8 to 11 inches—dark brown very cobbly clay loam

11 to 26 inches—dark reddish brown extremely cobbly clay

26 inches—basalt

### ***Properties and Qualities of Mallory***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Lawyer***

0 to 4 inches—black stony silt loam

4 to 11 inches—black gravelly silt loam

11 to 16 inches—very dark brown very gravelly clay loam

16 to 23 inches—very dark grayish brown very gravelly clay loam

23 to 35 inches—very dark grayish brown very cobbly clay loam

35 to 44 inches—dark brown very cobbly clay

44 inches—basalt

### ***Properties and Qualities of Lawyer***

*Depth to bedrock:* 40 to 60 inches

*Depth to clayey layers:* 35 to 52 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Demasters soils on concave backslopes
- Rockly soils on convex backslopes adjacent to areas of Rock outcrop

### ***Major Use***

Mallory and Lawyer—livestock grazing

### ***Major Management Limitations***

Mallory and Lawyer—water erosion, slope

Mallory—depth to clayey layers, shrink-swell potential, available water capacity, very stony soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Droughtiness of the Mallory soil may limit the success of seedings and the choice of species for seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

**203—Matheny-Linville-Laufer complex, 40 to 90 percent north slopes****Composition**

*Matheny and similar soils*—35 percent

*Linville and similar soils*—25 percent

*Laufer and similar soils*—25 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position:* Matheny and Linville—north-facing concave backslopes;

Laufer—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Matheny and Linville—colluvium derived from basalt with loess and minor amounts of volcanic ash in the upper part; Laufer—loess and colluvium derived from basalt

*Elevation:* 900 to 3,300 feet

*Native plants:* Matheny and Linville—Idaho fescue, bluebunch wheatgrass; Laufer—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—120 to 145 days

**Typical Profile of Matheny**

0 to 8 inches—black silt loam

8 to 14 inches—very dark brown silt loam

14 to 22 inches—very dark brown very cobbly clay loam

22 to 44 inches—dark brown extremely cobbly loam

44 inches—basalt

**Properties and Qualities of Matheny**

*Depth to bedrock:* 40 to 60 inches

*Depth to secondary calcium carbonates:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

*Corrosivity to uncoated steel:* High

**Typical Profile of Linville**

0 to 18 inches—black silt loam

18 to 38 inches—very dark brown cobbly silt loam

38 to 47 inches—very dark brown very cobbly loam

47 to 60 inches—dark brown very cobbly loam

**Properties and Qualities of Linville**

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 11 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Laufer***

0 to 4 inches—very dark brown very stony silt loam  
 4 to 8 inches—very dark brown very cobbly clay loam  
 8 to 11 inches—very dark brown very cobbly clay  
 11 to 16 inches—dark brown very cobbly clay  
 16 inches—basalt

### ***Properties and Qualities of Laufer***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Thiessen soils on middle backslopes
- Rock outcrop on convex backslopes
- Bridgewater soils on adjacent flood plains and fans at the base of canyon backslopes

### ***Major Use***

Matheny, Linville, and Laufer—livestock grazing

### ***Major Management Limitations***

Matheny, Linville, and Laufer—water erosion  
 Laufer—depth to clayey layers

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The clayey lower layers in the Laufer soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The low annual precipitation limits production and seasonal availability of forage.

## ***204—Matterhorn gravelly fine sandy loam, 0 to 3 percent slopes***

### ***Composition***

*Matterhorn and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Nearly level areas  
*Landform:* Stream terraces  
*Parent material:* Alluvium and glacial outwash  
*Elevation:* 3,800 to 4,500 feet  
*Native plants:* Ponderosa pine, Douglas fir, juniper, ninebark  
*Climatic factors:*  
     Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 3 inches—very dark gray gravelly fine sandy loam

3 to 10 inches—very dark grayish brown cobbly sandy loam

10 to 27 inches—dark grayish brown and grayish brown extremely cobbly loamy sand

27 to 46 inches—multicolored extremely cobbly sand

46 to 63 inches—multicolored extremely gravelly sand

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to secondary calcium carbonates:* 10 to 15 inches

*Drainage class:* Somewhat excessively drained

*Permeability:* Moderately rapid

*Available water capacity:* About 3 inches

*Frequency of flooding:* Rare

*Hazard of erosion:* Slight

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Cheval soils in depressions of flood plains
- Eggleston soils on high flood plains
- Redmount soils on slightly higher outwash plains
- Mippon soils on flood plains

### ***Major Uses***

Timber production, homesites

### ***Major Management Limitations***

Gravel on soil surface, soil compaction, seedling mortality, available water capacity, permeability, flooding, corrosivity, frost heaving, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.

#### **Homesites**

- Excavation is hampered by the cobbles in the soil.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- There is a risk of pollution of the ground water from onsite sewage disposal systems because of the moderately rapid permeability of the lower layers.
- Seasonal flooding may affect onsite sewage disposal systems.
- The lower layers may be too cobbly to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## **205—Minam loam, 2 to 8 percent slopes**

### ***Composition***

*Minam and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Middle to lower side slope margins

*Landform*: Alluvial or pediment fans

*Parent material*: Mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 3,700 to 4,900 feet

*Native plants*: Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 9 inches—black loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to extremely gravelly or very cobbly layer*: 30 to 40 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 9 inches

*Hazard of erosion*: Slight

*Shrink-swell potential*: Moderate

*Potential frost action*: Moderate

### ***Contrasting Inclusions***

- Endoaquolls in drainageways
- Minam soil that have a clayey substratum and are on the upper margins of fans
- Minam soils that have a cobbly surface layer and are on the upper margins of fans
- Minam soils that have a stony surface layer and are on the upper margins of fans

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Depth to extremely gravelly layer, frost heaving

### ***General Management Considerations***

#### **Irrigated cropland and hay and pasture**

- The risk of seepage limits construction of water impoundments.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.



- Erosion and downcutting may occur in irrigation ditches.
- Flood irrigation systems may cause an induced high water table and reduce the production of deep-rooted crops.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layer may be too gravelly to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are dusty when dry.

### **206—Minam loam, 8 to 15 percent slopes**

#### **Composition**

*Minam and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position*: Middle to lower side slope margins

*Landform*: Alluvial or pediment fans

*Parent material*: Mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 3,700 to 4,900 feet

*Native plants*: Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile**

0 to 9 inches—black loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

#### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Depth to extremely gravelly or very cobbly layer*: 30 to 40 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 9 inches

*Hazard of erosion*: Moderate

*Shrink-swell potential*: Moderate

*Potential frost action*: Moderate

#### **Contrasting Inclusions**

- Endoaquolls in drainageways
- Minam soils that have a clayey substratum and are on the upper margins of fans
- Minam soils that have a cobbly surface layer and are on the upper margins of fans
- Minam soils that have a stony surface layer and are on the upper margins of fans

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Water erosion, depth to extremely gravelly or very cobbly layer, frost heaving

### ***General Management Considerations***

#### **Irrigated cropland and hay and pasture**

- The risk of seepage limits construction of water impoundments.
- Erosion and downcutting may occur in irrigation ditches.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- Flood irrigation systems may cause an induced high water table and reduce the production of deep-rooted crops.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Excavation is hampered by the cobbles in the soil.
- The lower layer may be too gravelly to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Cutbanks in excavated areas may not be stable and may cave in.
- Unsurfaced roads are dusty when dry.

## ***207—Minam gravelly loam, 2 to 8 percent slopes***

### ***Composition***

*Minam and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Middle to lower side slope margins

*Landform:* Alluvial and pediment fans

*Parent material:* Mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,400 to 4,700 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 9 inches—black gravelly loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam  
 25 to 35 inches—dark reddish brown loam  
 35 to 60 inches—dark reddish brown extremely gravelly loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 7 inches  
*Hazard of erosion:* Slight  
*Shrink-swell potential:* Moderate  
*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Endoaquolls in drainageways
- Minam soils that have a cobbly surface layer and are on the upper margins of fans
- Minam soils that have a stony surface layer and are on the upper margins of fans
- Minam soils that have a clayey substratum and are on the upper margins of fans

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Gravel on soil surface, depth to extremely gravelly or very cobbly layer, frost heaving

### ***General Management Considerations***

#### **Irrigated cropland**

- The risk of seepage limits construction of water impoundments.
- Erosion and downcutting may occur in irrigation ditches.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.
- Flood irrigation systems may cause an induced high water table and reduce production of deep-rooted crops.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layer may be too gravelly to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are dusty when dry.

## ***208—Minam gravelly loam, 8 to 15 percent slopes***

### ***Composition***

*Minam and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Middle to lower side slope margins  
*Landform:* Alluvial and pediment fans  
*Parent material:* Mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,400 to 4,700 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 9 inches—black gravelly loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* Moderate

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Endoaquolls in drainageways
- Minam soils that have a cobbly surface layer and are on the upper margins of fans
- Minam soils that have a stony surface layer and are on the upper margins of fans
- Minam soils that have a clayey substratum and are on upper margins of fans

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Water erosion, depth to extremely gravelly or very cobbly layer, frost heaving

### ***General Management Considerations***

#### ***Irrigated cropland and hay and pasture***

- The risk of seepage limits construction of water impoundments.
- Erosion and downcutting may occur in irrigation ditches.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- Flood irrigation systems may cause an induced high water table and reduce production of deep-rooted crops.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### ***Homesites***

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Excavation is hampered by the rock fragments in the soil.
- The lower layer may be too gravelly to be suitable for use as landscaping material.

Stockpile topsoil and use it to reclaim areas disturbed during construction.

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Cutbanks in excavated areas may not be stable and may cave in.
- Unsurfaced roads are dusty when dry.

## ***209—Minam cobbly loam, 2 to 15 percent slopes***

### ***Composition***

*Minam and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Upper side slope margins

*Landform:* Alluvial and pediment fans

*Parent material:* Mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 9 inches—black cobbly loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Minam soils that have a clayey substratum and are on the upper margins of fans

### ***Major Use***

Timber production

### ***Major Management Limitations***

Permeability, depth to extremely gravelly or very cobbly layer, water erosion, soil compaction, seedling mortality, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***210—Minam stony loam, 2 to 8 percent slopes***

#### ***Composition***

*Minam and similar soils*—90 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Upper margins at the mouth of canyons or along intermittent streams flowing from canyons

*Landform:* Alluvial fans

*Parent material:* Mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 4,200 to 4,600 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

0 to 9 inches—black stony loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

#### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Moderate

*Potential frost action:* Moderate

#### ***Contrasting Inclusions***

- Endoaquolls in drainageways
- Minam soils that have a clayey substratum and are on the upper margins of fans

#### ***Major Uses***

Hay and pasture, homesites

### ***Major Management Limitations***

Stones on soil surface, depth to extremely gravelly or very cobbly layers, frost heaving

### ***General Management Considerations***

#### **Hay and pasture**

- The risk of seepage limits construction of water impoundments.
- Erosion and downcutting may occur in irrigation ditches.
- Flood irrigation systems may cause an induced high water table and reduce production of deep-rooted crops.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Homesites**

- Stones and cobbles on the surface make the construction of roads difficult.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Excavation is hampered by the rock fragments in the soil.
- The lower layers may be too gravelly to be suitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Stones on the surface make construction of roads difficult.
- Unsurfaced roads are dusty when dry.

## ***211—Minam stony loam, 8 to 15 percent slopes***

### ***Composition***

*Minam and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position*: Upper margins at the mouth of canyons or along intermittent streams flowing from canyons

*Landform*: Alluvial fans

*Parent material*: Mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 4,200 to 4,600 feet

*Native plants*: Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 9 inches—black stony loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to extremely gravelly or very cobbly layer*: 30 to 40 inches



*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 7 inches  
*Hazard of erosion:* Moderate  
*Shrink-swell potential:* Moderate  
*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Endoaquolls in drainageways
- Minam soils that have a clayey substratum and are on the upper margins of fans

### ***Major Uses***

Hay and pasture, homesites

### ***Major Management Limitations***

Stones on soil surface, water erosion, depth to extremely gravelly or very cobbly layer, frost heaving

### ***General Management Considerations***

#### **Hay and pasture**

- The risk of seepage limits construction of water impoundments.
- Erosion and downcutting may occur in irrigation ditches.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- Flood irrigation systems may cause an induced high water table and reduce production of deep-rooted crops.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- Stones on the surface make the construction of roads difficult.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Excavation is hampered by the rock fragments in the soil.
- The lower layer may be too gravelly to be suitable for landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Cutbanks in excavated areas may not be stable and may cave in.
- Unsurfaced roads are dusty when dry.

## ***212—Minam-Endoaquepts complex, 2 to 8 percent slopes***

### ***Composition***

*Minam loam and similar inclusions—30 percent*  
*Minam, gravelly, and similar inclusions—20 percent*  
*Endoaquepts and similar inclusions—40 percent*  
*Contrasting inclusions—10 percent*

### ***Setting***

*Landscape position:* Minam loam—middle side slope margins; Minam, gravelly—middle to lower side slope margins; Endoaquepts—drainageways and pediments

*Landform:* Alluvial fans

*Parent material:* Minam loam and Minam, gravelly—mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part; Endoaquepts—mixed alluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,700 to 4,800 feet

*Native plants:* Minam loam and Minam, gravelly—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Endoaquepts—sedges, rushes

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Minam Loam***

0 to 9 inches—black loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

### ***Properties and Qualities of Minam Loam***

*Depth to bedrock:* More than 60 inches

*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

### ***Typical Profile of Minam, Gravelly***

0 to 9 inches—black gravelly loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

### ***Properties and Qualities of Minam, Gravelly***

*Depth to bedrock:* More than 60 inches

*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

### ***Reference Profile of Endoaquepts***

0 to 5 inches—very dark gray mucky silt loam

5 to 21 inches—dark gray silt loam

21 to 42 inches—dark grayish brown silt loam

42 to 56 inches—very dark grayish brown silty clay loam

56 to 62 inches—dark grayish brown gravelly clay loam

### ***Properties and Qualities of Endoaquepts***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Poorly drained or very poorly drained

*Depth to water table (apparent):* At the surface to a depth of 1 foot below the surface in March through August

*Permeability:* Moderately slow

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

*Potential frost action:* Severe

### ***Contrasting Inclusions***

- Minam soils that have a stony surface layer and are on the upper margins of fans
- Minam soils that have a clayey substratum and are on the upper margins of fans

### ***Major Uses***

Minam loam and Minam, gravelly—hay and pasture

Endoaquepts—pasture

### ***Major Management Limitations***

Minam loam and Minam, gravelly—depth to extremely gravelly or very cobbly layer

Endoaquepts—permeability, high water table, frost heaving

### ***General Management Considerations***

#### ***Hay and pasture***

- Because the Endoaquepts are wet, production is limited to shallow-rooted, water-tolerant plants.
- Periodic flooding and seasonal wetness of the Endoaquepts limit forage production to water-tolerant plants.
- Wetness of the Endoaquepts limits the choice of adapted plants.
- Because of the high potential for frost action in the Endoaquepts, there is a risk of winterkill and seedling damage.
- Erosion and downcutting may occur in irrigation ditches in the Minam soils.
- The potential for seepage limits construction of water impoundments on the Minam soils.

## ***213—Minam-Endoaquepts complex, 8 to 15 percent slopes***

### ***Composition***

*Minam, gravelly, and similar inclusions—30 percent*

*Minam, stony, and similar inclusions—25 percent*

*Endoaquepts and similar inclusions—35 percent*

*Contrasting inclusions—10 percent*

### ***Setting***

*Landscape position:* Minam, gravelly—middle side slope margins; Minam, stony—upper margins along intermittent streams flowing from mouth of canyons; Endoaquepts—drainageways

*Landform:* Fans

*Parent material:* Minam, gravelly, and Minam, stony—mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part;

Endoaquepts—mixed alluvium with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,700 to 4,800 feet

*Native plants:* Minam, gravelly, and Minam, stony—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica;

Endoaquepts—sedges, tufted hairgrass, rushes

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Minam, Gravelly***

0 to 9 inches—black gravelly loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

#### ***Properties and Qualities of Minam, Gravelly***

*Depth to bedrock:* More than 60 inches

*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Moderate

#### ***Typical Profile of Minam, Stony***

0 to 9 inches—black stony loam

9 to 19 inches—very dark brown loam

19 to 25 inches—dark brown loam

25 to 35 inches—dark reddish brown loam

35 to 60 inches—dark reddish brown extremely gravelly loam

#### ***Properties and Qualities of Minam, Stony***

*Depth to bedrock:* More than 60 inches

*Depth to extremely gravelly or very cobbly layer:* 30 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Moderate

#### ***Reference Profile of Endoaquepts***

0 to 5 inches—very dark gray mucky silt loam

5 to 21 inches—dark gray silt loam

21 to 42 inches—dark grayish brown silt loam

42 to 56 inches—very dark grayish brown silty clay loam

56 to 62 inches—dark grayish brown gravelly clay loam

#### ***Properties and Qualities of Endoaquepts***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Poorly drained or very poorly drained

*Depth to water table (apparent):* At the surface to a depth of 1 foot below the surface in March through August

*Permeability:* Moderately slow

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

*Potential frost action:* Severe

### ***Contrasting Inclusions***

- Minam soils that have a loamy surface layer and are on footslopes
- Minam soils that have a clayey substratum

### ***Major Uses***

Minam—hay and pasture

Endoaquepts—pasture

### ***Major Management Limitations***

Minam, stony; Minam, gravelly; and Endoaquepts—water erosion

Minam, stony, and Minam, gravelly—depth to extremely gravelly or very cobbly layer

Endoaquepts—permeability, high water table, frost heaving

### ***General Management Considerations***

#### ***Hay and pasture***

- Because the Endoaquepts are wet, production is limited to shallow-rooted, water-tolerant plants.
- Periodic flooding and seasonal wetness of the Endoaquepts limit forage production to water-tolerant plants.
- Wetness of the Endoaquepts limits the choice of adapted plants.
- Erosion and downcutting may occur in irrigation ditches in the Minam soils.
- Because of the high potential for frost action, there is a risk of winterkill and seedling damage on the Endoaquepts.
- The potential for seepage limits construction of water impoundments on the Minam soils.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soils unless conservation practices are applied.

## ***214—Mippon loam, 0 to 3 percent slopes***

### ***Composition***

*Mippon and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Nearly level areas above the most recent flood plains

*Landform:* Flood plains

*Parent material:* Mixed alluvium

*Elevation:* 3,100 to 4,500 feet

*Native plants:* Engelmann spruce, black cottonwood, ponderosa pine, Rocky Mountain juniper, willow, birch, rose, sedge

*Climatic factors:*

Mean annual precipitation—18 to 40 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

2 inches to 0—partially decomposed roots, twigs, and needles

0 to 3 inches—very dark grayish brown loam

3 to 6 inches—very dark grayish brown very fine sandy loam  
 6 to 10 inches—very dark grayish brown fine sandy loam  
 10 to 21 inches—dark brown extremely gravelly loamy sand  
 21 to 60 inches—very dark grayish brown extremely cobbly loamy coarse sand

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to extremely gravelly layer:* 10 to 20 inches  
*Drainage class:* Moderately well drained  
*Depth to water table (apparent):* 3.0 to 5.0 feet in February through April  
*Permeability:* Moderate  
*Available water capacity:* About 3 inches  
*Frequency of flooding:* Rare in February through April  
*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Bittercreek soils in depressions and immediately adjacent to streams

### ***Major Uses***

Timber production, pasture in a few areas that have been cleared

### ***Major Management Limitations***

Rare flooding, soil compaction, high water table, extremely gravelly lower layer, available water capacity, permeability, seedling mortality, plant competition, windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the sandy lower layers, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.

## ***215—Mountemily-Troutmeadows complex, 15 to 30 percent north slopes***

### ***Composition***

*Mountemily and similar soils*—45 percent  
*Troutmeadows and similar soils*—40 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Mountemily—north-facing footslopes and concave backslopes;  
 Troutmeadows—north-facing shoulders and convex backslopes  
*Landform:* Mountains  
*Parent material:* Volcanic ash over colluvium derived from basalt  
*Elevation:* 5,400 to 7,000 feet  
*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 70 days

*Time of year more than 2 feet of snow on ground:* January through March

***Typical Profile of Mountemily***

1 inch to 0—slightly decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 29 inches—dark brown very cobbly loam

29 to 60 inches—dark brown very gravelly loam

***Properties and Qualities of Mountemily***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Hazard of erosion:* Severe

***Typical Profile of Troutmeadows***

1 inch to 0—partially decomposed needles and twigs

0 to 3 inches—dark brown silt loam

3 to 16 inches—brown silt loam

16 to 23 inches—dark yellowish brown very cobbly loam

23 to 30 inches—dark brown very cobbly loam

30 inches—basalt

***Properties and Qualities of Troutmeadows***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Puzzlecreek soils on narrow, convex backslopes
- Vandamine soils that are on adjacent footslopes and concave backslopes and are underlain by argillite
- Bordengulch soils that are on adjacent shoulders and convex backslopes and are underlain by argillite

***Major Use***

Mountemily and Troutmeadows—timber production

***Major Management Limitations***

Mountemily and Troutmeadows—cut and fill erosion, soil compaction, puddling, dustiness

Troutmeadows—windthrow

***General Management Considerations*****Timber production**

- Erosion control measures are needed to reduce soil loss from cut and fill slopes.



- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Unsurfaced roads and skid trails are soft when wet.
- Because of the surface volcanic ash, unsurfaced roads and skid trails are very dusty when dry.
- Trees on the Troutmeadows soil may be blown down when the soil is wet and winds are strong.

## ***216—Mountemily-Troutmeadows complex, 30 to 60 percent north slopes***

### ***Composition***

*Mountemily and similar soils*—45 percent

*Troutmeadows and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Mountemily—north-facing concave backslopes; Troutmeadows—north-facing convex backslopes

*Landform:* Mountains

*Parent material:* Volcanic ash over colluvium derived from basalt

*Elevation:* 5,400 to 7,000 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 70 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Mountemily***

1 inch to 0—slightly decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 29 inches—dark brown very cobbly loam

29 to 60 inches—dark brown very gravelly loam

### ***Properties and Qualities of Mountemily***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Troutmeadows***

1 inch to 0—partially decomposed needles and twigs

0 to 3 inches—dark brown silt loam

3 to 16 inches—brown silt loam

16 to 23 inches—dark yellowish brown very cobbly loam

23 to 30 inches—dark brown very cobbly loam

30 inches—basalt

### ***Properties and Qualities of Troutmeadows***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Puzzlecreek soils on narrow, convex backslopes
- Vandamine soils that are on adjacent concave backslopes and are underlain by argillite
- Bordengulch soils that are on adjacent convex backslopes and are underlain by argillite

### ***Major Use***

Mountemily and Troutmeadows—timber production

### ***Major Management Limitations***

Mountemily and Troutmeadows—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Troutmeadows—windthrow, fire damage

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on the Troutmeadows soil may be blown down when the soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity on the Troutmeadows soil may result in the loss of soil, loss of nutrients, and water repellency.

## ***217—Mountemily-Troutmeadows complex, 60 to 90 percent north slopes***

### ***Composition***

*Mountemily and similar soils*—45 percent

*Troutmeadows and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position:* Mountemily—north-facing concave backslopes; Troutmeadows—north-facing convex backslopes

*Landform:* Mountains

*Parent material:* Volcanic ash over colluvium derived from basalt

*Elevation:* 5,400 to 7,000 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 70 days

*Time of year more than 2 feet of snow on ground:* January through March

### **Typical Profile of Mountemily**

1 inch to 0—slightly decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 29 inches—dark brown very cobbly loam

29 to 60 inches—dark brown very gravelly loam

### **Properties and Qualities of Mountemily**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* Low

### **Typical Profile of Troutmeadows**

1 inch to 0—partially decomposed needles and twigs

0 to 3 inches—dark brown silt loam

3 to 16 inches—brown silt loam

16 to 23 inches—dark yellowish brown very cobbly loam

23 to 30 inches—dark brown very cobbly loam

30 inches—basalt

### **Properties and Qualities of Troutmeadows**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* Low

### **Contrasting Inclusions**

- Puzzlecreek soils on narrow, convex backslopes
- Vandamine soils that are on adjacent concave backslopes and are underlain by argillite
- Bordengulch soils that are on adjacent convex backslopes and are underlain by argillite

### ***Major Use***

Mountemily and Troutmeadows—timber production

### ***Major Management Limitations***

Mountemily and Troutmeadows—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Troutmeadows—windthrow, fire damage

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Unsurfaced roads are soft when wet.
- Because of the surface volcanic ash, unsurfaced roads and skid trails are very dusty when dry.
- Because of the depth to bedrock, trees on the Troutmeadows soil may be blown down when the soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity on the Troutmeadows soil may result in the loss of soil, loss of nutrients, and water repellency.

## ***218—Mountemily-Troutmeadows-Anatone complex, 60 to 90 percent north slopes***

### ***Composition***

*Mountemily and similar soils*—35 percent

*Troutmeadows and similar soils*—25 percent

*Anatone, cold, and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Mountemily—north-facing concave backslopes; Troutmeadows—north-facing convex backslopes; Anatone—north-facing narrow convex backslopes

*Landform:* Mountains

*Parent material:* Mountemily and Troutmeadows—volcanic ash over colluvium derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 5,400 to 7,000 feet

*Native plants:* Mountemily and Troutmeadows—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—50 to 70 days

*Time of year more than 2 feet of snow on ground:* January through March

***Typical Profile of Mount Emily***

1 inch to 0—slightly decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 29 inches—dark brown very cobbly loam

29 to 60 inches—dark brown very gravelly loam

***Properties and Qualities of Mount Emily***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Hazard of erosion:* Very severe

***Typical Profile of Troutmeadows***

1 inch to 0—partially decomposed needles and twigs

0 to 3 inches—dark brown silt loam

3 to 16 inches—brown silt loam

16 to 23 inches—dark yellowish brown very cobbly loam

23 to 30 inches—dark brown very cobbly loam

30 inches—basalt

***Properties and Qualities of Troutmeadows***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

***Contrasting Inclusions***

- Rock outcrop on backslopes
- Vandamine soils that are on adjacent concave backslopes and are underlain by argillite

- Bordengulch soils that are on adjacent convex backslopes and are underlain by argillite

### ***Major Uses***

Mountemily and Troutmeadows—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Mountemily and Troutmeadows—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Troutmeadows—windthrow, fire damage

Anatone—depth to bedrock, water erosion, frost heaving hazard, cool winter temperatures, slope stability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Because of the high potential for frost action, there is a risk of winterkill and seedling damage.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Unsurfaced roads are soft when wet.
- Because of the surface volcanic ash, unsurfaced roads and skid trails are very dusty when dry.
- Because of the depth to bedrock, trees on the Troutmeadows soil may be blown down when the soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity on the Troutmeadows soil may result in the loss of soil, loss of nutrients, and water repellency.

## **219—Needhill-Parsnip-Bocker complex, 15 to 30 percent slopes**

### ***Composition***

*Needhill and similar soils*—35 percent

*Parsnip and similar soils*—25 percent

*Bocker and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Needhill—footslopes; Parsnip—middle backslopes; Bocker—shoulders

*Landform:* Plateaus, structural benches

*Parent material:* Needhill—mixed volcanic ash and loess over colluvium and residuum derived from basalt; Parsnip—loess over basalt; Bocker—loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,800 feet

*Native plants:* Needhill and Parsnip—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespike oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Needhill***

0 to 9 inches—very dark grayish brown silt loam

9 to 20 inches—dark brown gravelly silt loam

20 to 35 inches—dark brown gravelly silt loam

35 to 53 inches—dark yellowish brown very cobbly loam

53 inches—basalt

### ***Properties and Qualities of Needhill***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Hazard of erosion:* Severe

### ***Typical Profile of Parsnip***

0 to 6 inches—very dark grayish brown gravelly silt loam

6 to 9 inches—dark brown silt loam

9 to 13 inches—dark brown silty clay loam

13 inches—basalt

### ***Properties and Qualities of Parsnip***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3.5 inches

*Hazard of erosion:* Severe



### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Albee soils on footslopes
- Anatone soils on shoulders
- Zumwalt soils on middle backslopes

### ***Major Use***

Needhill, Parsnip, and Bocker—livestock grazing

### ***Major Management Limitations***

Needhill, Parsnip, and Bocker—water erosion, cool winter temperatures

Parsnip and Bocker—depth to bedrock, permeability, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Parsnip and Bocker soils restricts the rooting depth.
- The shallow depth of the Parsnip and Bocker soils limits conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Parsnip and Bocker soils limits construction of water impoundments.
- The upper layer of the Parsnip and Bocker soils is saturated following snowmelt.
- Erosion of the easily disturbed surface layer of the Parsnip and Bocker soils causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the Parsnip and Bocker soils may limit the success of seedlings and the choice of species for seedlings.

## ***220—Needhill-Zumwalt complex, 0 to 15 percent slopes***

### ***Composition***

*Needhill and similar soils*—45 percent

*Zumwalt and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Needhill—mounds on patterned ground of summits; Zumwalt—intermounds on patterned ground of summits

*Landform:* Plateaus

*Parent material:* Needhill—mixed volcanic ash and loess over colluvium and residuum derived from basalt; Zumwalt—loess and volcanic ash over residuum and colluvium derived from basalt

*Elevation:* 4,000 to 5,500 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 25 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Needhill***

0 to 9 inches—very dark grayish brown silt loam

9 to 35 inches—dark brown gravelly silt loam

35 to 53 inches—dark yellowish brown very cobbly loam

53 inches—basalt

### ***Properties and Qualities of Needhill***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Zumwalt***

0 to 7 inches—black silt loam

7 to 9 inches—very dark grayish brown silt loam

9 to 21 inches—dark brown silty clay

21 to 37 inches—dark brown silty clay

37 inches—basalt

### ***Properties and Qualities of Zumwalt***

*Depth to bedrock:* 20 to 40 inches

*Depth to claypan:* 6 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High in the claypan

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Albee soils on mounds
- Harlow and Snell soils on intermounds
- Anatone soils on intermounds

### ***Major Use***

Needhill and Zumwalt—livestock grazing

### ***Major Management Limitations***

Needhill and Zumwalt—cool winter temperatures

Zumwalt—depth to claypan, permeability, shrink-swell potential, water erosion, corrosivity

### ***General Management Considerations***

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The upper layer of the Zumwalt soil is saturated following snowmelt.
- The claypan in the Zumwalt soil restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Zumwalt soil causes a change in the range site and a loss in the potential for forage production.
- Because of the high corrosivity of the Zumwalt soil, uncoated steel used in pipelines, watering facilities, and water structures may be damaged.

### ***221—Olot silt loam, 2 to 15 percent slopes***

#### ***Composition***

*Olot and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: North-facing summits

*Landform*: Structural benches, plateaus

*Parent material*: Volcanic ash over colluvium and residuum derived from basalt

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Western larch, Douglas fir, grand fir, lodgepole pine, big huckleberry

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—fractured basalt

#### ***Soil Properties and Qualities***

*Depth to bedrock*: 20 to 40 inches

*Thickness of volcanic ash mantle*: Extends to depth of 14 to 20 inches

*Drainage class*: Well drained

*Permeability*: Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity*: About 5 inches

*Hazard of erosion*: Slight or moderate

#### ***Contrasting Inclusions***

- Anatone and Harlow soils on shoulders
- Klicker soils on adjacent south-facing backslopes
- Rock outcrop on shoulders
- Tolo soils in drainageways and other concave areas of summits

**Major Use**

Timber production

**Major Management Limitations**

Hazard of compaction, depth to bedrock, dustiness, water erosion, available water capacity, permeability, seedling mortality, plant competition, windthrow

**General Management Considerations****Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

**222—Olot silt loam, 15 to 30 percent north slopes****Composition**

*Olot and similar soils*—85 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position*: North-facing backslopes

*Landform*: Structural benches, plateaus

*Parent material*: Volcanic ash over colluvium and residuum derived from basalt

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Western larch, Douglas fir, grand fir, lodgepole pine, big huckleberry

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—fractured basalt

**Soil Properties and Qualities**

*Depth to bedrock*: 20 to 40 inches

*Thickness of volcanic ash mantle*: Extends to depth of 14 to 20 inches

*Drainage class*: Well drained

*Permeability*: Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity*: About 5 inches

*Hazard of erosion*: Slight or moderate

### ***Contrasting Inclusions***

- Tolo soils in drainageways or on footslopes
- Klicker soils on adjacent south-facing backslopes or summits
- Anatone and Harlow soils on shoulders
- Getaway soils on adjacent north-facing backslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Hazard of compaction, depth to bedrock, dustiness, water erosion, available water capacity, permeability, seedling mortality, plant competition, windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***223—Olot-Anatone complex, 2 to 15 percent slopes***

### ***Composition***

*Olot and similar soils*—50 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Olot—convex areas on summits; Anatone—concave areas on summits

*Landform:* Plateaus, structural benches

*Parent material:* Olot—volcanic ash over colluvium and residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Olot—Douglas fir, grand fir, western larch, scattered ponderosa pine; Anatone—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Tolo soils on north-facing concave backslopes
- Bocker soils on shoulders
- Harlow soils on concave summits
- Klicker soils on adjacent south-facing backslopes
- Rock outcrop on shoulders

### ***Major Uses***

Olot—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Olot and Anatone—water erosion

Olot—soil compaction, seedling mortality, plant competition, windthrow, dustiness

Anatone—depth to bedrock, available water capacity, stony soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The upper layer of the soil is saturated following snowmelt.
- Depth to bedrock limits construction of water impoundments.
- Livestock tend to graze in the less stony areas.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.

- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **224—Olot-Anatone complex, 15 to 30 percent south slopes**

#### ***Composition***

*Olot and similar soils*—50 percent

*Anatone and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Olot—south-facing concave backslopes; Anatone—south-facing convex backslopes

*Landform:* Mountains, structural benches

*Parent material:* Olot—volcanic ash over colluvium and residuum derived from basalt; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Olot—Douglas fir, grand fir, western larch, scattered ponderosa pine; Anatone—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

#### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Moderate



### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
3 to 6 inches—very dark grayish brown very cobbly silt loam  
6 to 12 inches—dark brown very cobbly silty clay loam  
12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Tolo soils on footslopes
- Bocker soils on shoulders
- Harlow soils on concave backslopes
- Klicker soils on adjacent south-facing backslopes
- Rock outcrop on shoulders

### ***Major Uses***

Olot—timber production  
Anatone—livestock grazing

### ***Major Management Limitations***

Olot and Anatone—water erosion, slope  
Olot—soil compaction, seedling mortality, plant competition, windthrow  
Anatone—depth to bedrock, available water capacity, stony soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- Livestock tend to graze in the less stony areas.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.

- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## **225—Parsnip silt loam, 2 to 8 percent slopes**

### ***Composition***

*Parsnip and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Convex fault-tilted summits and convex shoulders

*Landform:* Broad plateaus

*Parent material:* Loess over basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 6 inches—very dark grayish brown silt loam

6 to 9 inches—dark brown silt loam

9 to 13 inches—dark brown silty clay loam

13 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3.5 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Bocker soils on gentle rises of summits
- Wallowa soils in depressions of summits

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Depth to bedrock, water erosion, available water capacity, permeability

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- Seeding areas that are in poor condition is difficult because of the soil depth.
- The upper layer is saturated following snowmelt because of the depth to bedrock.

- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

## **226—Parsnip-Bocker complex, 0 to 15 percent slopes**

### ***Composition***

*Parsnip and similar soils*—55 percent

*Bocker and similar soils*—30 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Parsnip—gentle rises of summits; Bocker—gentle depressions of summits

*Landform:* Plateaus

*Parent material:* Parsnip—loess over basalt; Bocker—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Parsnip—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Parsnip***

0 to 6 inches—very dark grayish brown gravelly silt loam

6 to 9 inches—dark brown silt loam

9 to 13 inches—dark brown silty clay loam

13 inches—basalt

### ***Properties and Qualities of Parsnip***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3.5 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Albee soils on gentle rises of summits
- Anatone soils along shoulders and in concave positions

### ***Major Use***

Parsnip and Bocker—livestock grazing

### ***Major Management Limitations***

Parsnip and Bocker—depth to bedrock, permeability, water erosion, available water capacity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments.
- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## ***227—Phys cobbly loam, 2 to 8 percent slopes***

### ***Composition***

*Phys and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* At the mouth of narrow canyons

*Landform:* Alluvial fans

*Parent material:* Mixed alluvium

*Elevation:* 2,000 to 3,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 10 inches—very dark brown cobbly loam

10 to 16 inches—very dark grayish brown cobbly loam

16 to 23 inches—dark brown very gravelly clay loam

23 to 60 inches—dark yellowish brown extremely cobbly sandy clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Moderate

### ***Contrasting Inclusions***

- Snow soils on adjacent lower stream terraces
- Phys soils that have surface stones and are on toeslopes
- Gelsinger soils on fans and toeslopes
- Conley soils in depressions of alluvial fans

### ***Major Uses***

Hay and pasture, homesites

### ***Major Management Limitations***

Permeability, cobbles on soil surface, shrink-swell potential, depth to extremely cobbly layer

### ***General Management Considerations***

#### **Hay and pasture**

- A tillage pan forms easily if the soil is excessively cultivated.
- The risk of seepage limits construction of water impoundments.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.
- The low annual precipitation limits production and seasonal availability of forage.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Because of the slowly permeable lower layers, special design of absorption lines may be needed.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Excavation is hampered by the cobbles in the soil.
- Because the lower layers are too cobbly or gravelly, they may be unsuitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***228—Phys-Doublecreek-Collegecreek complex, 2 to 15 percent slopes***

### ***Composition***

*Phys and similar soils*—40 percent

*Doublecreek and similar soils*—30 percent

*Collegecreek and similar soils*—20 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Phys—alluvial fans and terraces; Doublecreek—footslopes of

canyons; Collegecreek—volcanic ash pockets on fans and toeslopes

*Landform:* Narrow stream valleys

*Parent material:* Phys—mixed alluvium; Doublecreek—mixed loess and colluvium derived from basalt with a minor influence of volcanic ash; Collegecreek—volcanic ash over colluvium and alluvium derived from mixed sources

*Elevation:* 2,000 to 3,400 feet

*Native plants:* Phys and Collegecreek—bluebunch wheatgrass, netleaf hackberry, sand dropseed; Doublecreek—bluebunch wheatgrass, sand dropseed

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Phys***

0 to 10 inches—very dark brown gravelly loam

10 to 16 inches—very dark grayish brown cobbly loam

16 to 23 inches—dark brown very gravelly clay loam

23 to 60 inches—dark yellowish brown extremely cobbly sandy clay loam

### ***Properties and Qualities of Phys***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* Moderate

### ***Typical Profile of Doublecreek***

0 to 4 inches—black silt loam

4 to 10 inches—very dark brown silt loam

10 to 16 inches—very dark grayish brown silt loam

16 to 22 inches—dark brown cobbly loam

22 to 61 inches—brown cobbly fine sandy loam

### ***Properties and Qualities of Doublecreek***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Collegecreek***

0 to 8 inches—dark grayish brown loam

8 to 24 inches—brown loam

24 to 28 inches—brown fine sandy loam

28 to 41 inches—dark brown gravelly sandy loam

41 to 61 inches—dark yellowish brown cobbly loam

### ***Properties and Qualities of Collegecreek***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Langrell soils on outwash terraces

### ***Major Uses***

Phys, Doublecreek, and Collegecreek—livestock grazing, homesites

### ***Major Management Limitations***

Phys, Doublecreek, and Collegecreek—water erosion, slumps, slope, road stability

Phys—cobbly subsoil, shrink-swell potential, permeability

Doublecreek and Collegecreek—dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The low annual precipitation restricts forage production.

#### **Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Disturbed areas are subject to soil erosion.
- Excavation of the Phys soil is restricted by the cobbles in the soil.
- The quality of roadbeds and road surfaces on the Phys soil can be adversely affected by shrinking and swelling.
- Septic tank absorption fields in the Phys soil may function poorly because of the restricted permeability of the soil.
- Special design of absorption lines in the Phys soil may be needed because of the slowly permeable lower layers.
- The lower layer of the Phys soil may be too cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- The Phys soil expands when wet and contracts when dry, which can damage structures and plant roots.
- Unsurfaced roads on the Doublecreek soil are dusty when dry.
- Unsurfaced roads on the Collegecreek soil are very dusty when dry because of the surface volcanic ash.

## ***229—Phys-Doublecreek-Collegecreek complex, 15 to 30 percent slopes***

### ***Composition***

*Phys and similar soils*—35 percent

*Doublecreek and similar soils*—30 percent

*Collegecreek and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Phys—side slopes of alluvial fans and terraces; Doublecreek—footslopes of canyons; Collegecreek—volcanic ash pockets on side slopes of fans



*Landform:* Narrow stream valleys

*Parent material:* Phys—mixed alluvium; Doublecreek—mixed loess and colluvium derived from basalt with a minor influence of volcanic ash; Collegecreek—volcanic ash over colluvium and alluvium derived from mixed sources

*Elevation:* 2,000 to 3,400 feet

*Native plants:* Phys and Collegecreek—bluebunch wheatgrass, netleaf hackberry, sand dropseed; Doublecreek—bluebunch wheatgrass, sand dropseed

*Climatic factors:*

Mean annual precipitation—14 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Phys***

0 to 10 inches—very dark brown gravelly loam

10 to 16 inches—very dark grayish brown cobbly loam

16 to 23 inches—dark brown very gravelly clay loam

23 to 60 inches—dark yellowish brown extremely cobbly sandy clay loam

### ***Properties and Qualities of Phys***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* Moderate

### ***Typical Profile of Doublecreek***

0 to 4 inches—black silt loam

4 to 10 inches—very dark brown silt loam

10 to 16 inches—very dark grayish brown silt loam

16 to 22 inches—dark brown cobbly loam

22 to 61 inches—brown cobbly fine sandy loam

### ***Properties and Qualities of Doublecreek***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Collegecreek***

0 to 8 inches—dark grayish brown loam

8 to 24 inches—brown loam

24 to 28 inches—brown fine sandy loam

28 to 41 inches—dark brown gravelly sandy loam

41 to 61 inches—dark yellowish brown cobbly loam

### ***Properties and Qualities of Collegecreek***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 10 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Langrell soils on outwash terraces

### ***Major Uses***

Phys, Doublecreek, and Collegecreek—livestock grazing, homesites

### ***Major Management Limitations***

Phys, Doublecreek, and Collegecreek—water erosion, slumps, slope, road stability

Phys—cobbly subsoil, shrink-swell potential, permeability

Doublecreek and Collegecreek—dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.

#### **Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Disturbed areas are subject to soil erosion.
- Excavation of the Phys soil is hampered by the cobbles in the soil.
- The quality of roadbeds and road surfaces on the Phys soil can be adversely affected by shrinking and swelling.
- Septic tank absorption fields in the Phys soil may function poorly because of the restricted permeability of the soil.
- Because of the moderately slow permeability of the Phys soil, special design of absorption lines may be needed.
- The lower layers of the Phys soil are too cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- The Phys soil expands when wet and contracts when dry, which can damage structures and plant roots.
- Unsurfaced roads on the Doublecreek soil are dusty when dry.
- Unsurfaced roads on the Collegecreek soil are very dusty when dry because of the surface volcanic ash.

## ***230—Powwatka silt loam, 2 to 8 percent slopes***

### ***Composition***

*Powwatka and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Summits

*Landform*: Hills

*Parent material*: Loess over basalt with an influence of volcanic ash in the upper part

*Elevation*: 3,400 to 5,000 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 8 inches—very dark brown silt loam

8 to 14 inches—very dark grayish brown silt loam

14 to 24 inches—dark brown silty clay loam

24 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 8 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Hurwal soils on concave backslopes of summits
- Snell soils on shoulders
- Parsnip soils on shoulders
- Topper soils on slightly concave middle backslopes

### ***Major Uses***

Nonirrigated cropland, livestock grazing

### ***Major Management Limitation***

Cool winter temperatures

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- Other than climate, this soil has few limitations.

#### **Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## ***231—Powwatka silt loam, 8 to 15 percent slopes***

### ***Composition***

*Powwatka and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Backslopes

*Landform:* Hills

*Parent material:* Loess over basalt with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

- Mean annual precipitation—13 to 17 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile***

- 0 to 8 inches—very dark brown silt loam
- 8 to 14 inches—very dark grayish brown silt loam
- 14 to 24 inches—dark brown silty clay loam
- 24 inches—basalt

***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 8 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Moderate

***Contrasting Inclusions***

- Snell soils on shoulders
- Hurwal soils on footslopes
- Parsnip soils on shoulders
- Topper soils on slightly concave, middle backslopes

***Major Uses***

Nonirrigated cropland, livestock grazing

***Major Management Limitations***

Water erosion, cool winter temperatures

***General Management Considerations*****Nonirrigated cropland**

- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.
- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.

**Livestock grazing**

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

***232—Powwatka silt loam, 15 to 30 percent north slopes******Composition***

*Powwatka and similar soils*—85 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Hills

*Parent material:* Loess over basalt with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 8 inches—very dark brown silt loam

8 to 14 inches—very dark grayish brown silt loam

14 to 24 inches—dark brown silty clay loam

24 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 8 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* Moderate

### ***Contrasting Inclusions***

- Snell soils on footslopes
- Harlow soils on shoulders and convex backslopes
- Hurwal soils on footslopes
- Topper soils on footslopes and concave backslopes
- Parsnip soils on shoulders

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Water erosion, cool winter temperatures

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

## ***233—Powwatka silt loam, 15 to 30 percent south slopes***

### ***Composition***

*Powwatka and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* South-facing backslopes

*Landform:* Hills

*Parent material:* Loess over basalt with minor amounts of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 14 inches—very dark brown silt loam

14 to 24 inches—dark brown silty clay loam

24 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Snell soils on footslopes
- Harlow soils on shoulders and convex backslopes
- Hurwal soils on footslopes
- Topper soils on footslopes and concave backslopes
- Parsnip soils on shoulders

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Water erosion, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- This soil is on the warmer south-facing slopes; therefore, the growing season starts earlier and ends sooner than on the north-facing slopes.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## ***234—Puzzlecreek very stony very fine sandy loam, 20 to 60 percent north slopes***

### ***Composition***

*Puzzlecreek and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Mountains

*Parent material:* Colluvium derived from basalt mixed with loess and volcanic ash in the upper part

*Elevation:* 6,500 to 7,000 feet

*Native plants:* Idaho fescue, sedge, rush, bluegrass

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 70 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile***

0 to 9 inches—very dark grayish brown very stony very fine sandy loam

9 to 13 inches—dark brown very stony loam

13 to 39 inches—brown extremely cobbly loam

39 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 12 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Crawfish soils on shoulders
- Rock outcrop on shoulders and ledges

### ***Major Use***

Livestock grazing

### ***Major Management Limitation***

Water erosion

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cold soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## ***235—Ramo silty clay loam, 2 to 8 percent slopes***

### ***Composition***

*Ramo and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Toeslopes

*Landform:* Hills



*Parent material:* Mixed loess and slope alluvium over fine textured residuum and colluvium derived from basalt

*Elevation:* 2,800 to 3,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 8 inches—black silty clay loam

8 to 18 inches—very dark brown silty clay loam

18 to 41 inches—dark yellowish brown cobbly clay

41 to 65 inches—dark yellowish brown very cobbly clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 8 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Conley soils in depressions of alluvial fans
- Gelsinger soils on adjacent fans
- Langrell soils on fan terraces

### ***Major Uses***

Irrigated cropland, livestock grazing, homesites

### ***Major Management Limitations***

Permeability, shrink-swell potential, water erosion, depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Grazing when the soil is wet results in compaction of the upper layer and poor tilth.

#### **Irrigated cropland**

- Erosion and downcutting may occur in irrigation ditches.
- A tillage pan forms easily if the soil is excessively cultivated.
- Crusting on the soil surface reduces infiltration, causes ponding, and restricts seedling emergence.
- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.

#### **Homesites**

- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.

- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Because of the slowly permeable lower layers, special design of absorption lines may be needed.
- Excavation is hampered by the cobbles in the soil.
- The lower layers may be too clayey for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

### ***236—Ramo silty clay loam, 8 to 15 percent slopes***

#### ***Composition***

*Ramo and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: Footslopes

*Landform*: Hills

*Parent material*: Mixed loess and slope alluvium over fine textured residuum and colluvium derived from basalt

*Elevation*: 2,800 to 3,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile***

0 to 8 inches—black silty clay loam

8 to 18 inches—very dark brown silty clay loam

18 to 41 inches—dark yellowish brown cobbly clay

41 to 65 inches—dark yellowish brown very cobbly clay loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to clayey layers*: 10 to 20 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 8 inches

*Hazard of erosion*: Moderate

*Shrink-swell potential*: High

#### ***Contrasting Inclusions***

- Conley soils in depressions of alluvial fans
- Getaway soils on adjacent backslopes of forested hills

#### ***Major Uses***

Irrigated cropland, livestock grazing, homesites

#### ***Major Management Limitations***

Permeability, shrink-swell potential, water erosion, depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Grazing when the soil is wet results in compaction of the upper layer and poor tilth.
- The low annual precipitation limits production and seasonal availability of forage.

#### **Irrigated cropland**

- Erosion and downcutting may occur in irrigation ditches.
- A tillage pan forms easily if the soil is excessively cultivated.
- Crusting on the soil surface reduces infiltration, causes ponding, and restricts seedling emergence.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.

#### **Homesites**

- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Because of the slowly permeable lower layers, special design of absorption lines may be needed.
- Excavation is hampered by the cobbles in the soil.
- The lower layers may be too clayey for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.

### ***237—Ramo silty clay loam, 15 to 30 percent north slopes***

#### ***Composition***

*Ramo and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: North-facing footslopes

*Landform*: Hills

*Parent material*: Mixed loess and alluvium over fine textured residuum and colluvium derived from basalt

*Elevation*: 2,800 to 3,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass, chokecherry, snowberry

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 8 inches—black silty clay loam  
 8 to 18 inches—very dark brown silty clay loam  
 18 to 41 inches—dark yellowish brown cobbly clay  
 41 to 65 inches—dark yellowish brown very cobbly clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Conley soils on adjacent alluvial fans
- Rockly soils on shoulders and backslopes
- Getaway soils on adjacent backslopes of forested hills

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Water erosion, permeability, shrink-swell potential, depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The low annual precipitation limits production and seasonal availability of forage.

## ***238—Ramo-Conley complex, 2 to 15 percent slopes***

### ***Composition***

*Ramo and similar soils*—50 percent  
*Conley and similar soils*—35 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Ramo—footslopes; Conley—concave areas  
*Landform:* Ramo—hills; Conley—alluvial fans  
*Parent material:* Ramo—mixed loess and slope alluvium over fine textured residuum and colluvium derived from basalt; Conley—mixed alluvial and lacustrine material  
*Elevation:* 2,800 to 3,400 feet  
*Native plants:* Ramo—Idaho fescue, bluebunch wheatgrass, prairie junegrass;  
 Conley—basin wildrye, bluegrass, bluebunch wheatgrass, willow, cottonwood  
*Climatic factors:*  
 Mean annual precipitation—13 to 17 inches  
 Mean annual air temperature—45 to 50 degrees F  
 Frost-free period—100 to 120 days

### ***Typical Profile of Ramo***

0 to 8 inches—black silty clay loam  
8 to 18 inches—very dark brown silty clay loam  
18 to 41 inches—dark yellowish brown cobbly clay  
41 to 65 inches—dark yellowish brown very cobbly clay loam

### ***Properties and Qualities of Ramo***

*Depth to bedrock:* More than 60 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High

### ***Typical Profile of Conley***

0 to 14 inches—black silty clay loam  
14 to 18 inches—very dark gray silt loam  
18 to 23 inches—very dark grayish brown silt loam  
23 to 40 inches—very dark grayish brown silty clay  
40 to 60 inches—dark grayish brown gravelly silty clay loam

### ***Properties and Qualities of Conley***

*Depth to bedrock:* More than 60 inches  
*Depth to claypan:* 15 to 30 inches  
*Drainage class:* Somewhat poorly drained  
*Depth to water table (perched):* 1.5 to 2.5 feet in December through April  
*Permeability:* Slow  
*Available water capacity:* About 10 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High in the claypan

### ***Contrasting Inclusions***

- Gelsinger soils on fans
- Getaway soils on adjacent backslopes of forested hills

### ***Major Uses***

Ramo and Conley—livestock grazing, homesites

### ***Major Management Limitations***

Ramo and Conley—permeability, shrink-swell potential, water erosion  
Ramo—depth to clayey layers  
Conley—high water table, depth to claypan

### ***General Management Considerations***

#### **Livestock grazing**

- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Damage to the soil and plants may occur unless grazing is delayed until the Conley soil is firm.
- Seasonal wetness of the Conley soil may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- The amount of available water is higher because of the surface and subsurface flows from adjacent uplands.

- Erosion of the easily disturbed surface layer of the Conley soil causes a change in the range site and a loss in the potential for forage production.

#### **Homesites**

- The soils expand when wet and contract when dry, which can damage structures and plant roots.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling.
- Septic tank absorption fields may function poorly because of the restricted permeability of the soils.
- Untreated effluent in the soils can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Because of the slowly permeable lower layers, special design of absorption lines may be needed.
- Cutbanks are not stable and therefore are subject to slumping.
- Because of the steepness of slope, special design of buildings, access roads, and absorption lines may be needed.
- The lower layers may be too clayey for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Because of the wetness of the Conley soil, alternative construction techniques for buildings may be needed.
- Excavation increases the risk of water erosion on the Conley soil.
- Disturbed areas of the Conley soil are subject to soil erosion.

### **239—Reavis silt loam, 0 to 3 percent slopes**

#### ***Composition***

*Reavis and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: Nearly level treads

*Landform*: Outwash plains

*Parent material*: Glaciofluvial outwash with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 3,600 to 4,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

0 to 15 inches—very dark brown silt loam

15 to 34 inches—dark yellowish brown silt loam

34 to 41 inches—dark brown loam

41 to 54 inches—pale brown very gravelly loam

54 to 60 inches—pale brown gravelly loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to very gravelly secondary calcium carbonate layer*: 30 to 44 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity:* About 9 inches

*Hazard of erosion:* Slight

*Corrosivity to uncoated steel:* High

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Chesnimnus soils on slightly higher outwash plains
- Redmount soils in convex positions
- Minam soils on slightly higher alluvial fans

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Depth to very gravelly layer, corrosion potential, calcareous lower layer, frost heaving

### ***General Management Considerations***

#### ***Irrigated cropland and hay and pasture***

- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The risk of seepage limits construction of water impoundments.

#### ***Homesites***

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Unsurfaced roads are dusty when dry.

## ***240—Redmount silt loam, 0 to 3 percent slopes***

### ***Composition***

*Redmount and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Nearly level treads

*Landform:* Broad outwash plains

*Parent material:* Glaciofluvial outwash with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 20 inches—very dark brown loam

20 to 32 inches—very dark brown sandy loam

32 to 60 inches—very dark grayish brown very gravelly sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches



*Depth to very gravelly layer:* 26 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Josset soils on slightly lower flood plains
- Cheval soils in depressions on adjacent lower flood plains

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Permeability, depth to very gravelly layer, frost heaving, seepage

### ***General Management Considerations***

#### ***Irrigated cropland and hay and pasture***

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- The risk of seepage limits construction of water impoundments.

#### ***Homesites***

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layer may be too gravelly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***241—Redmount silt loam, 3 to 8 percent slopes***

### ***Composition***

*Redmount and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Slightly concave treads

*Landform:* Broad outwash plains

*Parent material:* Glaciofluvial outwash with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—black silt loam

12 to 20 inches—very dark brown loam

20 to 32 inches—very dark brown sandy loam

32 to 60 inches—very dark grayish brown very gravelly sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly layer:* 26 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and rapid in the lower part

*Available water capacity:* About 8 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Josset soils on adjacent lower flood plains
- Cheval soils in depressions on adjacent lower flood plains

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Permeability, depth to very gravelly layer, frost heaving, seepage

### ***General Management Considerations***

#### ***Irrigated cropland and hay and pasture***

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- Flood irrigation systems will not apply water uniformly because of the uneven topography.
- The risk of seepage limits construction of water impoundments.

#### ***Homesites***

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layer may be too gravelly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***242—Redmount gravelly silt loam, 0 to 3 percent slopes***

### ***Composition***

*Redmount and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Nearly level trends close to the mouth of canyons

*Landform:* Broad outwash plains

*Parent material:* Glaciofluvial outwash with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—black gravelly silt loam  
 12 to 20 inches—very dark brown loam  
 20 to 32 inches—very dark brown sandy loam  
 32 to 60 inches—very dark grayish brown very gravelly sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to very gravelly layer:* 26 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Josset soils on adjacent slightly lower flood plains
- Cheval soils in depressions of adjacent lower flood plains

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Permeability, gravel on soil surface, depth to very gravelly layer, frost heaving, seepage

### ***General Management Considerations***

#### **Irrigated cropland and hay and pasture**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- The risk of seepage limits construction of water impoundments.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layer may be too gravelly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***243—Redmount-Cheval complex, 0 to 2 percent slopes***

### ***Composition***

*Redmount and similar soils*—50 percent  
*Cheval and similar soils*—35 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Redmount—gentle rises; Cheval—depressions  
*Landform:* Redmount—broad outwash plains; Cheval—adjacent flood plains  
*Parent material:* Redmount—glaciofluvial outwash with an influence of loess and minor amounts of volcanic ash in the upper part; Cheval—mixed alluvium  
*Elevation:* 3,400 to 4,400 feet  
*Native plants:* Redmount—Idaho fescue, bluebunch wheatgrass; Cheval—bluegrass, sedges, rushes, tufted hairgrass

*Climatic factors:*

- Mean annual precipitation—13 to 17 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile of Redmount***

- 0 to 12 inches—black silt loam
- 12 to 20 inches—very dark brown loam
- 20 to 32 inches—very dark brown sandy loam
- 32 to 60 inches—very dark grayish brown very gravelly sandy loam

***Properties and Qualities of Redmount***

- Depth to bedrock:* More than 60 inches
- Depth to very gravelly layer:* 26 to 40 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 8 inches

***Typical Profile of Cheval***

- 0 to 6 inches—very dark brown silt loam
- 6 to 15 inches—very dark gray silt loam
- 15 to 24 inches—very dark gray loam
- 24 to 31 inches—dark gray, mottled gravelly loam
- 31 to 60 inches—grayish brown very gravelly loamy sand

***Properties and Qualities of Cheval***

- Depth to bedrock:* More than 60 inches
- Depth to very gravelly sandy layer:* 20 to 36 inches
- Drainage class:* Somewhat poorly drained
- Depth to water table (apparent):* 1.5 to 2.5 feet in January through June
- Permeability:* Moderate in the surface layer and very rapid below
- Available water capacity:* About 6 inches
- Frequency of flooding:* Occasional in January through June
- Corrosivity to uncoated steel:* High

***Contrasting Inclusions***

- Sturgill soils in depressions of flood plains
- Lostine soils on slightly higher terraces

***Major Use***

Redmount and Cheval—hay and pasture

***Major Management Limitations***

Redmount and Cheval—depth to very gravelly sandy layers, permeability, seepage  
Cheval—high water table, corrosion potential, flooding

***General Management Considerations*****Hay and pasture**

- The high water table restricts deep-rooted crops on the Cheval soil.
- The rapid permeability of the Cheval soil increases the risk of deep percolation of irrigation water below the root zone.
- The contrasting sandy layer in the Cheval soil restricts the growth of deep-rooted plants.

- The high corrosivity of the Cheval soil may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The seepage potential of the Cheval soil limits construction of water impoundments.

## **244—Riverwash**

### ***Composition***

*Riverwash*—80 percent

*Contrasting inclusions*—20 percent

### ***Setting***

*Landscape position:* Rock bars immediately adjacent to or within the course of rivers and streams

*Landform:* Flood plains

*Kind of material:* Rounded gravel, cobbles, and stones of basalt or granitic origin

*Elevation:* 2,700 to 3,400 feet

*Native plants:* None

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Very poorly drained or poorly drained

*Depth to water table:* At the surface to a depth of 1.5 feet below the surface in January through December

*Permeability:* Very rapid

*Frequency of flooding:* Frequent in October through July

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Voats and Veazie soils in convex areas of adjacent flood plains
- Balm and Hershal soils in concave areas of adjacent flood plains

### ***Major Uses***

Source of gravel for road construction, riparian areas

### ***Major Management Limitations***

Inability to access rock bars with earth-moving equipment, removal of all or part of rock bars during periods of high water, rolling topography and excavated trees slow the movement of large equipment over rock bars

## **245—Rock outcrop, limestone, 60 to 90 percent slopes**

### ***Composition***

*Rock outcrop, limestone*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Backslopes in Lostine Canyon

*Landform:* Canyons

*Kind of material:* Limestone or limestone metamorphosed to marble

*Elevation:* 5,000 to 5,400 feet

*Native plants:* None

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

### ***Contrasting Inclusions***

- Wintercanyon and Bluecanyon soils that are underlain by argillite on backslopes near limestone exposures
- Rubble land along the edge of areas of Rock outcrop or on footslopes

### ***Major Uses***

Source of decorative rock, escape area for wildlife

### ***Major Management Limitations***

Slope, lack of vegetation, rock fall

## ***246—Rock outcrop-Anatone-Fivebit complex, scarp, 60 to 90 percent south slopes***

### ***Composition***

*Rock outcrop*—50 percent

*Anatone and similar soils*—20 percent

*Fivebit and similar soils*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes; Anatone—south-facing convex backslopes; Fivebit—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Fivebit—colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,800 feet

*Native plants:* Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Fivebit—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 35 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Fivebit***

0 to 4 inches—very dark grayish brown very gravelly sandy loam

4 to 9 inches—dark brown extremely gravelly sandy loam

9 to 15 inches—dark brown extremely gravelly sandy loam

15 to 19 inches—brown extremely gravelly sandy loam

19 inches—basalt

### ***Properties and Qualities of Fivebit***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Klicker soils on concave backslopes
- Imnaha soils on concave backslopes

### ***Major Uses***

Anatone and Fivebit—livestock grazing

Fivebit—timber production

### ***Major Management Limitations***

Rock outcrop—physical barrier to livestock movement

Rock outcrop, Anatone, and Fivebit—slope

Anatone and Fivebit—water erosion, depth to bedrock, available water capacity, cool winter temperatures, stability

Anatone—very stony soil surface

Fivebit—sheet and rill erosion, cut and fill erosion, equipment limitations, soil displacement, seedling mortality, windthrow, plant competition, fire damage, puddling, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The nearly vertical basalt layers prevent livestock from crossing.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Droughtiness may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.



**Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Rock outcrop forces yarding and skidding paths to converge, which increases the risks of compaction and erosion.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Surface rock fragments make tree planting difficult.
- Unsurfaced roads are firm when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***247—Rock outcrop-Anatone-Imnaha complex, scarp, 60 to 90 percent north slopes***

***Composition***

*Rock outcrop*—35 percent

*Anatone and similar soils*—30 percent

*Imnaha, moist, and similar soils*—20 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position:* Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes; Anatone—north-facing convex backslopes; Imnaha, moist—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Anatone—loess and colluvium derived from basalt; Imnaha, moist—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Anatone—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Imnaha, moist—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry

*Climatic factors:*

Mean annual precipitation—17 to 25 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Very severe

### ***Typical Profile of Imnaha, Moist***

0 to 5 inches—black gravelly silt loam  
 5 to 17 inches—very dark gray gravelly silt loam  
 17 to 21 inches—very dark grayish brown very gravelly silt loam  
 21 to 24 inches—dark brown very gravelly loam  
 24 inches—basalt

### ***Properties and Qualities of Imnaha, Moist***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Cherrycreek soils on concave backslopes
- Linecreek soils in V-shaped drainageways of backslopes
- Bocker soils on convex backslopes

### ***Major Use***

Anatone and Imnaha, moist—livestock grazing

### ***Major Management Limitations***

Rock outcrop—physical barrier to livestock movement  
 Rock outcrop, Anatone, and Imnaha, moist—slope  
 Anatone and Imnaha, moist—water erosion, cool winter temperatures  
 Anatone—depth to bedrock, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The nearly vertical basalt layers prevent livestock from crossing.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.

**248—Rock outcrop-Anatone-Imnaha complex, scarp, 60 to 90 percent south slopes****Composition**

*Rock outcrop*—50 percent  
*Anatone and similar soils*—20 percent  
*Imnaha and similar soils*—15 percent  
*Contrasting inclusions*—15 percent

**Setting**

*Landscape position*: Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes; Anatone—south-facing convex backslopes; Imnaha—south-facing concave backslopes

*Landform*: Canyons

*Parent material*: Anatone—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation*: 4,000 to 5,500 feet

*Native plants*: Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat; Imnaha—bluebunch wheatgrass, Idaho fescue

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

**Typical Profile of Anatone**

0 to 3 inches—very dark grayish brown very stony silt loam  
3 to 6 inches—very dark grayish brown very cobbly silt loam  
6 to 12 inches—dark brown very cobbly silty clay loam  
12 inches—basalt

**Properties and Qualities of Anatone**

*Depth to bedrock*: 10 to 20 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 2 inches

*Hazard of erosion*: Very severe

**Typical Profile of Imnaha**

0 to 5 inches—black gravelly silt loam  
5 to 17 inches—very dark gray gravelly silt loam  
17 to 21 inches—very dark grayish brown very gravelly silt loam  
21 to 24 inches—dark brown very gravelly loam  
24 inches—basalt

**Properties and Qualities of Imnaha**

*Depth to bedrock*: 20 to 40 inches

*Thickness of volcanic ash influence*: Extends to a depth of 12 to 20 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Fivebit soils on middle backslopes
- Bocker soils on convex backslopes
- Klicker soils on concave backslopes

### ***Major Use***

Anatone and Imnaha—livestock grazing

### ***Major Management Limitations***

Rock outcrop—physical barrier to livestock movement

Rock outcrop, Anatone, and Imnaha—slope

Anatone and Imnaha—water erosion, cool winter temperatures

Anatone—depth to bedrock, available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The nearly vertical basalt layers prevent livestock from crossing.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Anatone soil restricts the rooting depth.
- The shallow depth of the Anatone soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Anatone soil causes a change in the range site and a loss in the potential for forage production.

## ***249—Rock outcrop-Imnaha-Cherrycreek complex, scarp, 60 to 90 percent north slopes***

### ***Composition***

*Rock outcrop*—50 percent

*Imnaha and similar soils*—20 percent

*Cherrycreek and similar soils*—20 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes; Imnaha—north-facing convex backslopes; Cherrycreek—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,500 feet

*Native plants:* Imnaha—Idaho fescue, bluebunch wheatgrass; Cherrycreek—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry

*Climatic factors:*

Mean annual precipitation—15 to 25 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Cherrycreek***

0 to 9 inches—black very cobbly silt loam

9 to 28 inches—very dark grayish brown extremely cobbly silt loam

28 to 43 inches—brown extremely cobbly silt loam

43 to 53 inches—reddish brown extremely cobbly silt loam

53 inches—basalt

### ***Properties and Qualities of Cherrycreek***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 35 to 50 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Anatone and Bocker soils on convex backslopes
- Getaway soils on concave backslopes

### ***Major Use***

Imnaha and Cherrycreek—livestock grazing

### ***Major Management Limitations***

Rock outcrop—physical barrier to livestock movement

Rock outcrop, Imnaha, and Cherrycreek—slope

Imnaha and Cherrycreek—water erosion, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The nearly vertical basalt layers prevent livestock from crossing.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or

wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.

## **250—Rock outcrop-Linecreek-Anatone complex, scarp, 60 to 90 percent slopes**

### **Composition**

*Rock outcrop*—50 percent

*Linecreek and similar soils*—20 percent

*Anatone and similar soils*—15 percent

*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position:* Rock outcrop (horizontal layers of exposed bedrock)—north- and south-facing backslopes; Linecreek—north-facing concave backslopes; Anatone—south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Linecreek—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part; Anatone—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,500 feet

*Native plants:* Linecreek—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Anatone—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

### **Typical Profile of Linecreek**

0 to 9 inches—very dark grayish brown extremely cobbly loam

9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam

22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam

35 to 50 inches—yellowish brown extremely cobbly fine sandy loam

50 to 61 inches—brown extremely gravelly loam

### **Properties and Qualities of Linecreek**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 11 inches

*Hazard of erosion:* Very severe

### **Typical Profile of Anatone**

0 to 3 inches—very dark grayish brown very stony silt loam

3 to 6 inches—very dark grayish brown very cobbly silt loam

6 to 12 inches—dark brown very cobbly silty clay loam

12 inches—basalt

### **Properties and Qualities of Anatone**

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Kahler soils on concave backslopes
- Kamela and Klicker soils on middle backslopes
- Bocker soils on convex backslopes

### ***Major Uses***

Linecreek—timber production

Anatone—livestock grazing

### ***Major Management Limitations***

Rock outcrop—physical barrier to livestock movement

Rock outcrop, Linecreek, and Anatone—slope

Linecreek and Anatone—water erosion

Linecreek—sheet and rill erosion, cut and fill erosion, equipment limitations, soil displacement, plant competition, fire damage, puddling, dustiness

Anatone—depth to bedrock, very stony soil surface, available water capacity, cool winter temperatures, stability

### ***General Management Considerations***

#### **Livestock grazing**

- The nearly vertical basalt layers prevent livestock from crossing.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soil.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads are firm when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.



- The areas of Rock outcrop force yarding and skidding paths to converge, which increases the risks of compaction and erosion.
- Surface stones and the slope make tree planting difficult.

### ***251—Rock outcrop-Rockly-Dixiejett complex, scarp, 60 to 90 percent south slopes***

#### ***Composition***

*Rock outcrop*—45 percent

*Rockly and similar soils*—25 percent

*Dixiejett and similar soils*—20 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes; Rockly—south-facing convex backslopes; Dixiejett—south-facing concave backslopes (fig. 15)

*Landform:* Canyons

*Parent material:* Rockly—loess and colluvium derived from basalt; Dixiejett—colluvium and residuum derived from basalt

*Elevation:* 2,800 to 4,000 feet

*Native plants:* Rockly and Dixiejett—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 20 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days



**Figure 15.—Horizontal layers of basalt in an area of Rock outcrop-Rockly-Dixiejett complex, scarp, 60 to 90 percent south slopes, on backslopes of canyons in the Imnaha Valley.**

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam  
3 to 7 inches—dark brown extremely cobbly loam  
7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 0.5 inch  
*Hazard of erosion:* Very severe

### ***Typical Profile of Dixiejett***

0 to 6 inches—very dark grayish brown gravelly loam  
6 to 10 inches—very dark grayish brown very gravelly loam  
10 to 18 inches—dark brown very gravelly loam  
18 to 27 inches—brown very gravelly clay loam  
27 to 43 inches—dark yellowish brown extremely gravelly loam  
43 inches—basalt

### ***Properties and Qualities of Dixiejett***

*Depth to bedrock:* 40 to 60 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Licksillet soils on convex backslopes
- Tannahill soils on concave backslopes
- Schuelke soils on middle backslopes

### ***Major Use***

Rockly and Dixiejett—livestock grazing

### ***Major Management Limitations***

Rock outcrop—physical barrier to livestock movement  
Rock outcrop, Rockly, and Dixiejett—slope  
Rockly and Dixiejett—depth to bedrock, water erosion, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The nearly vertical basalt layers prevent livestock from crossing.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Rockly soil restricts the rooting depth.
- The shallow depth of the Rockly soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Rockly soil causes a change in the range site and a loss in the potential for forage production.

- Droughtiness may limit the success of seedlings and the choice of species for seedlings.

## ***252—Rockly-Rock outcrop-Copperfield complex, 60 to 90 percent north slopes***

### ***Composition***

*Rockly and similar soils*—35 percent

*Rock outcrop*—30 percent

*Copperfield and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Rockly—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes; Copperfield—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 800 to 2,800 feet

*Native plants:* Rockly—bluebunch wheatgrass, Idaho fescue; Copperfield—Idaho fescue, bluebunch wheatgrass, common snowberry, rose

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam

3 to 7 inches—dark brown extremely cobbly loam

7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Very severe

### ***Typical Profile of Copperfield***

0 to 4 inches—black very cobbly silt loam

4 to 22 inches—very dark brown very cobbly silt loam

22 to 42 inches—very dark grayish brown very gravelly silty clay loam

42 to 60 inches—dark brown extremely cobbly silty clay loam

### ***Properties and Qualities of Copperfield***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 5 inches

*Hazard of erosion:* Very severe

***Contrasting Inclusions***

- Lickskillet soils on middle backslopes
- Linville soils on concave backslopes

***Major Use***

Rockly and Copperfield—livestock grazing

***Major Management Limitations***

Rockly, Rock outcrop, and Copperfield—slope

Rockly and Copperfield—water erosion

Rockly—depth to bedrock

***General Management Considerations*****Livestock grazing**

- The bedrock in the Rockly soil restricts the rooting depth.
- The shallow depth of the Rockly soil limits the use of conventional fencing and makes special design of fences necessary.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The low annual precipitation limits production and seasonal availability of forage.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.

***253—Rockly-Rock outcrop-Lickskillet complex, 60 to 90 percent south slopes******Composition***

*Rockly and similar soils*—35 percent

*Rock outcrop*—25 percent

*Lickskillet and similar soils*—25 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position:* Rockly—south-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—south-facing backslopes; Lickskillet—south-facing concave backslopes

*Landform:* Canyons

*Parent material:* Rockly—loess and colluvium derived from basalt; Lickskillet—colluvium and residuum derived from basalt

*Elevation:* 2,800 to 4,000 feet

*Native plants:* Rockly and Lickskillet—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—13 to 20 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam  
 3 to 7 inches—dark brown extremely cobbly loam  
 7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 0.5 inch  
*Hazard of erosion:* Very severe

### ***Typical Profile of Licksillet***

0 to 7 inches—very dark grayish brown very cobbly loam  
 7 to 19 inches—brown extremely cobbly loam  
 19 inches—Imnaha basalt

### ***Properties and Qualities of Licksillet***

*Depth to bedrock:* 12 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* Low

### ***Contrasting Inclusions***

- Tannahill and Dixiejett soils on concave backslopes
- Schuelke soils on middle backslopes

### ***Major Use***

Rockly and Licksillet—livestock grazing

### ***Major Management Limitations***

Rockly, Rock outcrop, and Licksillet—slope  
 Rockly and Licksillet—depth to bedrock, water erosion, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the soils restricts the rooting depth.
- The shallow depth of the soils limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the soils causes a change in the range site and a loss in the potential for forage production.

**254—Rondowa silt loam, 2 to 8 percent slopes****Composition**

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

**Setting**

*Landscape position*: Gently sloping and slightly concave summits

*Landform*: Moraines

*Parent material*: Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 3,500 to 5,000 feet

*Native plants*: Idaho fescue, prairie junegrass, hawthorn

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

0 to 10 inches—black silt loam

10 to 17 inches—very dark brown gravelly loam

17 to 26 inches—very dark grayish brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

**Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 8 inches

*Hazard of erosion*: Slight

*Potential frost action*: Moderate

**Contrasting Inclusions**

- Rondowa soils that have surface stones or cobbles
- Hurwal soils on gentle north-facing hillslopes

**Major Uses**

Livestock grazing, homesites

**Major Management Limitations**

Permeability, depth to very cobbly layers, frost heaving, cool winter temperatures

**General Management Considerations****Livestock grazing**

- The risk of seepage limits construction of water impoundments.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

**Homesites**

- Excavation is hampered by the cobbles in the soil.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layers may be too gravelly and cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

**255—Rondowa silt loam, 8 to 15 percent slopes****Composition**

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

**Setting**

*Landscape position*: Slightly concave summits

*Landform*: Moraines

*Parent material*: Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 3,500 to 5,000 feet

*Native plants*: Idaho fescue, prairie junegrass, hawthorn

*Climatic factors*:

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

0 to 10 inches—black silt loam

10 to 17 inches—very dark brown gravelly loam

17 to 26 inches—very dark grayish brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

**Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 8 inches

*Hazard of erosion*: Moderate

*Potential frost action*: Moderate

**Contrasting Inclusions**

- Rondowa soils that have surface stones or cobbles
- Hurwal soils on gentle north-facing hillslopes

**Major Uses**

Livestock grazing, homesites

**Major Management Limitations**

Permeability, depth to very cobbly layers, water erosion, frost heaving, cool winter temperatures



### ***General Management Considerations***

#### **Livestock grazing**

- The risk of seepage limits construction of water impoundments.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Excavation is hampered by the cobbles in the soil.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layers may be too gravelly or cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.

### ***256—Rondowa stony loam, 2 to 15 percent slopes***

#### ***Composition***

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Undulating summits and footslopes

*Landform:* Moraines

*Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Idaho fescue, prairie junegrass, hawthorn

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

0 to 10 inches—black stony loam

10 to 17 inches—very dark brown gravelly loam

17 to 26 inches—very dark grayish brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

#### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Slight or moderate

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Small area near Joseph that is on old flood plains and consists of mixed glacial till
- Hurwal soils on gentle north-facing hillslopes
- Rondowa soils that do not have a stony surface

### ***Major Uses***

Livestock grazing, homesites

### ***Major Management Limitations***

Permeability, stones on soil surface, depth to very cobbly layers, water erosion, frost heaving, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of seepage limits construction of water impoundments.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Excavation is hampered by the stones and cobbles in the soil.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Stones and cobbles on the surface make the construction of roads difficult.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The lower layers may be too gravelly or cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***257—Rondowa stony loam, 15 to 30 percent north slopes***

### ***Composition***

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Moraines

*Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass, hawthorn, chokecherry, mallow ninebark, snowberry, rose

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 10 inches—black stony loam

10 to 17 inches—very dark brown gravelly loam

17 to 26 inches—very dark grayish brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Hurwal soils on adjacent footslopes of hills
- Rondowa soils that do not have a stony surface

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Permeability, stones on soil surface, water erosion

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The risk of seepage limits construction of water impoundments.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## ***258—Rondowa stony loam, 30 to 60 percent north slopes***

### ***Composition***

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Moraines

*Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Idaho fescue, hawthorn, bluebunch wheatgrass, chokecherry, mallow ninebark, snowberry, rose

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 10 inches—black stony loam

10 to 17 inches—very dark brown gravelly loam

17 to 26 inches—very dark grayish brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Hurwal soils on adjacent footslopes of hills
- Rondowa soils that do not have a stony surface

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Stones on soil surface, water erosion, slope, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Livestock tend to graze the easily accessible forage on gentle slopes before they graze the forage on steeper slopes.
- Slope restricts the operation of ground seeding equipment.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

## ***259—Rondowa stony loam, 15 to 30 percent south slopes***

### ***Composition***

*Rondowa and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* South-facing backslopes

*Landform:* Moraines

*Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

- Mean annual precipitation—17 to 30 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile***

- 0 to 10 inches—black stony loam
- 10 to 17 inches—very dark brown gravelly loam
- 17 to 26 inches—very dark grayish brown gravelly loam
- 26 to 36 inches—dark brown very cobbly loam
- 36 to 60 inches—dark grayish brown very cobbly loam

***Soil Properties and Qualities***

- Depth to bedrock:* More than 60 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 8 inches
- Hazard of erosion:* Severe

***Contrasting Inclusions***

- Klicker soils on adjacent backslopes of mountains
- Rondowa soils that do not have a stony surface

***Major Use***

Livestock grazing

***Major Management Limitations***

Permeability, stones on soil surface, water erosion, permeability, cool winter temperatures

***General Management Considerations******Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The risk of seepage limits construction of water impoundments.
- This soil is on warmer south-facing slopes; therefore, the growing season starts earlier and ends sooner than on the north-facing slopes.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

***260—Rondowa stony loam, 30 to 60 percent south slopes******Composition***

- Rondowa and similar soils*—90 percent
- Contrasting inclusions*—10 percent

***Setting***

- Landscape position:* South-facing backslopes
- Landform:* Moraines
- Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part (fig. 16)



**Figure 16.—Area of Rondowa stony loam, 30 to 60 percent south slopes, showing the glacial till that includes mixed granitic, basaltic, and other kinds of rock. This area is on the east moraine of Wallowa Lake.**

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 10 inches—black stony loam

10 to 17 inches—very dark brown gravelly loam

17 to 26 inches—very dark grayish brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Klicker soils on adjacent backslopes of mountains
- Rondowa soils that do not have a stony surface

**Major Use**

Livestock grazing

**Major Management Limitations**

Stones on soil surface, water erosion, slope, cool winter temperatures

**General Management Considerations****Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Livestock tend to graze the easily accessible forage on gentle slopes before they graze the forage on steeper slopes.
- Slope restricts the operation of ground seeding equipment.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- This soil is on warmer south-facing slopes; therefore, the growing season starts earlier and ends sooner than on the north-facing slopes.

**261—Rondowa bouldery loam, 2 to 15 percent slopes****Composition**

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

**Setting**

*Landscape position:* Strongly sloping treads at the mouth of narrow canyons

*Landform:* Outwash fans

*Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

**Climatic factors:**

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile**

0 to 10 inches—black bouldery loam

10 to 17 inches—dark brown gravelly loam

17 to 26 inches—very dark brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

**Soil Properties and Qualities**

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches



*Hazard of erosion:* Slight or moderate

*Potential frost action:* Moderate

### ***Contrasting Inclusions***

- Ferguson soils on higher adjacent moraine slopes
- Rondowa soils that do not have a bouldery surface

### ***Major Uses***

Timber production, homesites

### ***Major Management Limitations***

Hazard of soil compaction, boulders on soil surface, equipment operability, seedling mortality, plant competition, frost action, permeability, cool winter temperatures

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Excavation is hampered by the boulders and cobbles in the soil.
- Boulders on the surface make the construction of roads difficult.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Disturbed areas are subject to soil erosion.
- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Unsurfaced roads are dusty when dry.
- The lower layers may be too stony for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***262—Rondowa bouldery loam, 15 to 30 percent north slopes***

### ***Composition***

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Moraines

*Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

- Mean annual precipitation—17 to 24 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile***

- 0 to 10 inches—black bouldery loam
- 10 to 17 inches—dark brown gravelly loam
- 17 to 26 inches—very dark brown gravelly loam
- 26 to 36 inches—dark brown very cobbly loam
- 36 to 60 inches—dark grayish brown very cobbly loam

***Soil Properties and Qualities***

- Depth to bedrock:* More than 60 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 8 inches
- Hazard of erosion:* Severe
- Potential frost action:* Moderate

***Contrasting Inclusions***

- Rondowa soils that do not have a bouldery surface
- Ferguson soils on higher adjacent moraine slopes

***Major Uses***

Timber production, homesites

***Major Management Limitations***

Boulders on soil surface, water erosion, soil compaction, frost heaving, equipment operability, plant competition, seedling mortality, permeability, cool winter temperatures

***General Management Considerations*****Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are soft when wet. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

**Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Excavation is hampered by the boulders and cobbles in the soil.
- Boulders on the surface make the construction of roads difficult.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Disturbed areas are subject to soil erosion.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Frost action limits construction of access roads, driveways, and buildings.
- Unsurfaced roads are dusty when dry.

- The lower layers may be too cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

### **263—Rondowa bouldery loam, 30 to 60 percent north slopes**

#### **Composition**

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

#### **Setting**

*Landscape position*: North-facing backslopes

*Landform*: Moraines

*Parent material*: Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 4,000 to 5,000 feet

*Native plants*: Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile**

0 to 10 inches—black bouldery loam

10 to 17 inches—dark brown gravelly loam

17 to 26 inches—very dark brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

#### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 8 inches

*Hazard of erosion*: Severe

*Potential frost action*: Moderate

#### **Contrasting Inclusions**

- Ferguson soils on higher adjacent moraine slopes
- Rondowa soils that do not have a bouldery surface

#### **Major Use**

Timber production

#### **Major Management Limitations**

Slope, water erosion, boulders on soil surface, soil compaction, equipment operability, soil displacement, seedling mortality, plant competition

#### **General Management Considerations**

##### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are soft when wet.
- Unsurfaced roads are dusty when dry.

## ***264—Rondowa bouldery loam, 15 to 30 percent south slopes***

### ***Composition***

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position*: South-facing backslopes

*Landform*: Moraines

*Parent material*: Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation*: 4,000 to 5,000 feet

*Native plants*: Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 10 inches—black bouldery loam

10 to 17 inches—dark brown gravelly loam

17 to 26 inches—very dark brown gravelly loam

26 to 36 inches—dark brown very cobbly loam

36 to 60 inches—dark grayish brown very cobbly loam

### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 8 inches

*Hazard of erosion*: Severe

*Potential frost action*: Moderate

### ***Contrasting Inclusions***

- Rondowa soils that do not have a bouldery surface
- Ferguson soils on adjacent higher moraine slopes

### ***Major Uses***

Timber production, homesites

### ***Major Management Limitations***

Boulders on soil surface, water erosion, soil compaction, droughtiness, frost heaving, equipment operability, seedling mortality, plant competition, permeability

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are soft when wet. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

#### **Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Excavation is hampered by the boulders and cobbles in the soil.
- Boulders on the surface make the construction of roads difficult.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Disturbed areas are subject to soil erosion.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Frost action limits construction of access roads, driveways, and buildings.
- Unsurfaced roads are dusty when dry.
- The lower layers may be too cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

## ***265—Rondowa bouldery loam, 30 to 60 percent south slopes***

### ***Composition***

*Rondowa and similar soils*—90 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* South-facing backslopes

*Landform:* Moraines

*Parent material:* Mixed glacial till with an influence of loess and minor amounts of volcanic ash in the upper part

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 10 inches—black bouldery loam

10 to 17 inches—dark brown gravelly loam

17 to 26 inches—very dark brown gravelly loam

26 to 36 inches—dark brown very cobbly loam  
 36 to 60 inches—dark grayish brown very cobbly loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Rondowa soils that do not have a bouldery surface
- Ferguson soils on adjacent higher moraine slopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Slope, soil compaction, equipment operability, water erosion, boulders on soil surface, droughtiness, soil displacement, seedling mortality, plant competition

### ***General Management Considerations***

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are soft when wet.
- Unsurfaced roads are dusty when dry.

## ***266—Rubble land-Rock outcrop complex, 60 to 90 percent slopes***

### ***Composition***

*Rubble land*—70 percent  
*Rock outcrop*—15 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Rubble land—backslopes directly below areas of Rock outcrop;  
 Rock outcrop (horizontal layers of exposed bedrock)—backslopes  
*Landform:* Canyons  
*Parent material:* Basalt  
*Elevation:* 3,000 to 5,000 feet  
*Native plants:* None  
*Climatic factors:*  
 Mean annual precipitation—17 to 24 inches  
 Mean annual air temperature—41 to 45 degrees F

### ***Contrasting Inclusions***

- Bocker and Anatone soils on shoulders
- Imnaha and Cherrycreek soils on footslopes

### ***Major Uses***

Source of rock for road construction, escape areas for wildlife

### ***Major Management Limitations***

Rubble land and Rock outcrop—slope  
Rubble land—instability, subject to rock slides

## ***267—Sag silt loam, 15 to 30 percent north slopes***

### ***Composition***

*Sag and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: North-facing backslopes and drainageways

*Landform*: Canyons

*Parent material*: Loess and minor amounts of volcanic ash over colluvium derived from basalt

*Elevation*: 2,800 to 3,800 feet

*Native plants*: Hawthorn, mallow ninebark, Saskatoon serviceberry, common snowberry, Idaho fescue

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—slightly decomposed leaves  
0 to 4 inches—black silt loam  
4 to 30 inches—very dark gray silt loam  
30 to 47 inches—dark brown silty clay loam  
47 to 61 inches—brown silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 10 inches

*Hazard of erosion*: Severe

### ***Contrasting Inclusions***

- Cherrycreek soils on footslopes
- Imnaha soils on shoulders

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Water erosion, cool winter temperatures



### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

### ***268—Sag silt loam, 30 to 60 percent north slopes***

#### ***Composition***

*Sag and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: North-facing backslopes and drainageways

*Landform*: Canyons

*Parent material*: Loess and minor amounts of volcanic ash over colluvium derived from basalt

*Elevation*: 2,800 to 3,800 feet

*Native plants*: Hawthorn, mallow ninebark, Saskatoon serviceberry, common snowberry, Idaho fescue

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

1 inch to 0—slightly decomposed leaves

0 to 4 inches—black silt loam

4 to 30 inches—very dark gray silt loam

30 to 47 inches—dark brown silty clay loam

47 to 61 inches—brown silty clay loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 10 inches

*Hazard of erosion*: Severe

#### ***Contrasting Inclusions***

- Cherrycreek soils on footslopes
- Imnaha soils on shoulders

#### ***Major Use***

Livestock grazing

#### ***Major Management Limitations***

Water erosion, cool winter temperatures, slope

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

### ***269—Sag silt loam, 60 to 90 percent north slopes***

#### ***Composition***

*Sag and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: North-facing backslopes and drainageways

*Landform*: Canyons

*Parent material*: Loess and minor amounts of volcanic ash over colluvium derived from basalt

*Elevation*: 2,800 to 3,800 feet

*Native plants*: Hawthorn, mallow ninebark, Saskatoon serviceberry, common snowberry, Idaho fescue

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

1 inch to 0—slightly decomposed leaves

0 to 4 inches—black silt loam

4 to 30 inches—very dark gray silt loam

30 to 47 inches—dark brown silty clay loam

47 to 61 inches—brown silty clay loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 10 inches

*Hazard of erosion*: Very severe

#### ***Contrasting Inclusions***

- Cherrycreek soils on footslopes
- Imnaha soils on shoulders

#### ***Major Use***

Livestock grazing

#### ***Major Management Limitations***

Water erosion, cool winter temperatures, slope

### ***General Management Considerations***

#### **Livestock grazing**

- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

### ***270—Schrier silt loam, 2 to 8 percent slopes***

#### ***Composition***

*Schrier and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Footslopes

*Landform:* Hills

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile***

0 to 9 inches—very dark brown silt loam

9 to 23 inches—very dark grayish brown silt loam

23 to 30 inches—brown silty clay loam

30 to 34 inches—dark grayish brown silty clay loam

34 to 43 inches—grayish brown clay loam

43 to 60 inches—brown clay loam

#### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to calcium carbonate layer:* 18 to 43 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Moderate

#### ***Contrasting Inclusions***

- Phys soils on adjacent lower alluvial fans
- Snow soils on adjacent terraces
- Watama soils on adjacent higher backslopes of hills
- Laufer soils on adjacent south-facing backslopes of hills

- Thiessen soils on adjacent south-facing backslopes of hills

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitation***

Permeability

### ***General Management Considerations***

#### **Irrigated cropland**

- Flood irrigation systems will not apply water uniformly because of the uneven topography.
- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.

#### **Hay and pasture**

- The risk of seepage limits construction of water impoundments.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the restricted permeability of the soil.
- Unsurfaced roads are dusty when dry.

## ***271—Schrier-Almota complex, 15 to 30 percent north slopes***

### ***Composition***

*Schrier and similar soils*—55 percent

*Almota and similar soils*—30 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Schrier—north-facing footslopes and concave backslopes;

Almota—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,500 to 2,800 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—12 to 15 inches

Mean annual air temperature—49 to 51 degrees F

Frost-free period—130 to 160 days

### ***Typical Profile of Schrier***

0 to 9 inches—very dark brown silt loam

9 to 23 inches—very dark grayish brown silt loam

23 to 30 inches—brown silty clay loam

30 to 34 inches—dark grayish brown silty clay loam

34 to 43 inches—grayish brown clay loam

43 to 60 inches—brown clay loam

### ***Properties and Qualities of Schrier***

*Depth to bedrock:* More than 60 inches

*Depth to calcium carbonate layer:* 18 to 43 inches

*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Severe  
*Corrosivity to uncoated steel:* High

### ***Typical Profile of Almota***

0 to 8 inches—very dark grayish brown silt loam  
 8 to 19 inches—dark brown silt loam  
 19 to 29 inches—brown loam  
 29 to 38 inches—pale brown very gravelly loam  
 38 inches—basalt and shale

### ***Properties and Qualities of Almota***

*Depth to bedrock:* 20 to 40 inches  
*Depth to calcium carbonate layer:* 15 to 30 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Severe  
*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Matheny soils on footslopes
- Lickskillet soils on shoulders
- Linville soils on footslopes

### ***Major Use***

Schrier and Almota—livestock grazing

### ***Major Management Limitations***

Schrier and Almota—slope, corrosivity  
 Almota—available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- Droughtiness of the Almota soil may limit the success of seedings and the choice of species for seedings.
- The low annual precipitation limits production and seasonal availability of forage.

## ***272—Schrier-Almota-Rock outcrop complex, 30 to 60 percent north slopes***

### ***Composition***

*Schrier and similar soils*—50 percent  
*Almota and similar soils*—25 percent  
*Rock outcrop*—10 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Schrier—north-facing concave backslopes; Almota—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,500 to 2,800 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—12 to 15 inches

Mean annual air temperature—49 to 51 degrees F

Frost-free period—130 to 160 days

### ***Typical Profile of Schrier***

0 to 9 inches—very dark brown silt loam

9 to 23 inches—very dark grayish brown silt loam

23 to 30 inches—brown silty clay loam

30 to 34 inches—dark grayish brown silty clay loam

34 to 43 inches—grayish brown clay loam

43 to 60 inches—brown clay loam

### ***Properties and Qualities of Schrier***

*Depth to bedrock:* More than 60 inches

*Depth to calcium carbonate layer:* 18 to 43 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

*Corrosivity to uncoated steel:* High

### ***Typical Profile of Almota***

0 to 8 inches—very dark grayish brown silt loam

8 to 19 inches—dark brown silt loam

19 to 29 inches—brown loam

29 to 38 inches—pale brown very gravelly loam

38 inches—basalt and shale

### ***Properties and Qualities of Almota***

*Depth to bedrock:* 20 to 40 inches

*Depth to calcium carbonate layer:* 15 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Matheny soils on footslopes and concave backslopes
- Licksillet soils on shoulders and convex backslopes
- Linville soils on footslopes and concave backslopes

### ***Major Use***

Schrier and Almota—livestock grazing

### ***Major Management Limitations***

Schrier, Almota, and Rock outcrop—slope  
 Schrier and Almota—water erosion, corrosivity  
 Almota—available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The low annual precipitation limits production and seasonal availability of forage.

## ***273—Schuelke-Schrier-Rockly complex, 8 to 30 percent slopes***

### ***Composition***

*Schuelke and similar soils*—55 percent  
*Schrier and similar soils*—15 percent  
*Rockly and similar soils*—15 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Schuelke—broad summits; Schrier—north-facing backslopes of dissected ravines; Rockly—south-facing backslopes of dissected ravines  
*Landform:* Structural benches (fig. 17)  
*Parent material:* Loess and colluvium derived from basalt  
*Elevation:* 1,700 to 2,600 feet  
*Native plants:* Schuelke and Schrier—bluebunch wheatgrass, sand dropseed;  
 Rockly—bluebunch wheatgrass, sand dropseed, buckwheat  
*Climatic factors:*  
 Mean annual precipitation—12 to 15 inches  
 Mean annual air temperature—47 to 50 degrees F  
 Frost-free period—120 to 160 days

### ***Typical Profile of Schuelke***

0 to 5 inches—very dark brown silt loam  
 5 to 12 inches—very dark grayish brown very cobbly silty clay loam  
 12 to 22 inches—pale brown very cobbly loam  
 22 to 33 inches—brown very cobbly loam  
 33 inches—basalt

### ***Properties and Qualities of Schuelke***

*Depth to bedrock:* 20 to 40 inches  
*Depth to calcium carbonate layer:* 12 to 30 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Severe  
*Corrosivity to uncoated steel:* High





Figure 17.—Area of Schuelke-Schrier-Rockly complex, 8 to 30 percent slopes, on structural benches in left middle. This area is near Fence Creek, in Imnaha Valley, and north of the town of Imnaha.

### ***Typical Profile of Schrier***

0 to 9 inches—very dark brown silt loam  
 9 to 23 inches—very dark grayish brown silt loam  
 23 to 30 inches—brown silty clay loam  
 30 to 34 inches—dark grayish brown silty clay loam  
 34 to 43 inches—grayish brown clay loam  
 43 to 60 inches—brown clay loam

### ***Properties and Qualities of Schrier***

*Depth to bedrock:* More than 60 inches  
*Depth to calcium carbonate layer:* 18 to 43 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 8 inches  
*Hazard of erosion:* Severe  
*Corrosivity to uncoated steel:* High

### ***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam  
 3 to 7 inches—dark brown extremely cobbly loam  
 7 inches—basalt

### ***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tannahill soils on structural benches of canyons
- Doublecreek soils on north-facing backslopes of ravines
- Flybow soils on south-facing backslopes of ravines

### ***Major Uses***

Schuelke, Schrier, and Rockly—livestock grazing, homesites

### ***Major Management Limitations***

Schuelke, Schrier, and Rockly—water erosion, slope, dustiness

Schuelke and Schrier—corrosivity, shrink-swell potential, permeability

Schuelke and Rockly—available water capacity, depth to bedrock

Rockly—surface cobbles

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- High corrosivity of the Schuelke and Schrier soils may damage uncoated steel used in pipelines, watering facilities, and water structures.
- Droughtiness of the Schuelke and Rockly soils may limit the success of seedings and the choice of species for seedings.
- The bedrock in the Rockly soil restricts the rooting depth.
- The shallow depth of the Rockly soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Rockly soil limits construction of water impoundments.
- Erosion of the easily disturbed surface layer of the Rockly soil causes a change in the range site and a loss in the potential for forage production.
- The low annual precipitation limits production and seasonal availability of forage.

#### **Homesites**

- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Cutbanks are not stable and therefore are subject to slumping.
- Disturbed areas are subject to soil erosion.
- Unsurfaced roads are dusty when dry.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling of the Schuelke and Schrier soils.
- Septic tank absorption fields in the Schuelke and Schrier soils may function poorly because of limited permeability, which restricts the movement and filtration of the effluent.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- Excavation of the Schuelke and Rockly soils is hampered by the limited depth to bedrock.
- In the Schuelke and Rockly soils, the deep cuts needed to level the road surface can expose hard bedrock that is difficult to excavate.

- Septic tank absorption fields in the Schuelke and Rockly soils may function poorly because of the limited depth to bedrock.
- The lower layers in the Schuelke and Rockly soils may be too cobbly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Cobbles on the surface of the Rockly soil make the construction of roads difficult.
- Excavation of the Rockly soil is hampered by the cobbles in the soil.

## **274—Silverlake silt loam, 0 to 3 percent slopes**

### ***Composition***

*Silverlake and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Slightly convex trends

*Landform*: Outwash terraces

*Parent material*: Glaciofluvial deposits with an influence of loess in the upper part

*Elevation*: 3,800 to 4,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 12 inches—very dark brown silt loam

12 to 18 inches—dark brown silty clay loam

18 to 24 inches—dark brown clay

24 to 31 inches—dark yellowish brown silty clay loam

31 to 42 inches—light yellowish brown very gravelly silt loam

42 to 57 inches—brown strongly cemented duripan

57 to 63 inches—dark grayish brown very gravelly loamy sand

### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to strongly cemented duripan*: 40 to 60 inches

*Depth to clayey layers*: 10 to 15 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 7 inches

*Hazard of erosion*: Slight

*Shrink-swell potential*: High

*Corrosivity to uncoated steel*: High

*Potential frost action*: Moderate

### ***Contrasting Inclusions***

- Chesnimnus soils on slightly higher outwash plains
- Reavis soils on slightly lower outwash plains

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitations***

Permeability, shrink-swell potential, depth to clayey layers, corrosivity, depth to duripan, frost heaving

### ***General Management Considerations***

#### **Irrigated cropland and hay and pasture**

- The clayey layers restrict the rooting depth.
- The clayey layers expand when wet and contract when dry, which can damage plant roots.
- A tillage pan forms easily if the soil is excessively cultivated.
- Grazing when the soil is wet results in compaction of the upper layer and poor tilth.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.

#### **Homesites**

- Septic tank absorption fields may function poorly because of the restricted permeability of the soil and the limited depth to the duripan.
- Because of the slow permeability, special design of absorption lines may be needed.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- The clayey layers may be unsuitable for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are dusty when dry.

## ***275—Slicklog gravelly loam, 15 to 30 percent slopes***

### ***Composition***

*Slicklog and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Footslopes

*Landform:* Mountains

*Parent material:* Volcanic ash and colluvium derived from argillite, shale, or conglomerate

*Elevation:* 3,800 to 4,600 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 85 days

### ***Typical Profile***

1 inch to 0—partially decomposed twigs and needles

0 to 6 inches—very dark brown gravelly loam

6 to 16 inches—very dark brown very gravelly loam  
 16 to 22 inches—very dark grayish brown gravelly loam  
 22 to 49 inches—very dark grayish brown very gravelly loam  
 49 to 60 inches—dark grayish brown extremely stony sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 40 to 60 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 7 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tolo soils on footslopes
- Rondowa soils on outwash fans
- Mippon soils on adjacent flood plains

### ***Major Use***

Timber production

### ***Major Management Limitations***

Soil compaction, plant competition, puddling, dustiness

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***276—Slicklog-Eastpine complex, 30 to 60 percent north slopes***

### ***Composition***

*Slicklog and similar soils*—50 percent  
*Eastpine and similar soils*—35 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Slicklog—north-facing concave backslopes; Eastpine—north-facing convex backslopes  
*Landform:* Mountains  
*Parent material:* Slicklog—volcanic ash and colluvium derived from argillite, shale, or conglomerate; Eastpine—colluvium and residuum derived from metasedimentary rock with an influence of volcanic ash in the upper part

*Elevation:* 3,800 to 5,400 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 85 days

### ***Typical Profile of Slicklog***

1 inch to 0—partially decomposed twigs and needles

0 to 6 inches—very dark brown gravelly loam

6 to 16 inches—very dark brown very gravelly loam

16 to 22 inches—very dark grayish brown gravelly loam

22 to 49 inches—very dark grayish brown very gravelly loam

49 to 60 inches—dark grayish brown extremely stony sandy loam

### ***Properties and Qualities of Slicklog***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Eastpine***

1 inch to 0—slightly decomposed leaves, moss, and twigs

0 to 14 inches—very dark brown very cobbly loam

14 to 26 inches—brown very gravelly sandy loam

26 to 38 inches—brown very cobbly sandy loam

38 inches—metasedimentary rock

### ***Properties and Qualities of Eastpine***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Wintercanyon soils on convex backslopes
- Tolo soils on concave backslopes

### ***Major Use***

Slicklog and Eastpine—timber production

### ***Major Management Limitations***

Slicklog and Eastpine—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, puddling, dustiness

Eastpine—seedling mortality, windthrow, plant competition

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Unsurfaced roads on the Slicklog soil are soft when wet.
- Unsurfaced roads on the Eastpine soil are firm when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because the Eastpine soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees on the Eastpine soil may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation on the Eastpine soil.

### ***277—Slicklog-Eastpine-Rock outcrop complex, 60 to 90 percent north slopes***

#### ***Composition***

*Slicklog and similar soils*—55 percent

*Eastpine and similar soils*—20 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Slicklog—north-facing concave backslopes; Eastpine—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Mountains

*Parent material:* Slicklog—volcanic ash and colluvium derived from argillite, shale, or conglomerate; Eastpine—colluvium and residuum derived from metasedimentary rock with an influence of volcanic ash in the upper part

*Elevation:* 3,800 to 5,800 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 85 days

#### ***Typical Profile of Slicklog***

1 inch to 0—partially decomposed twigs and needles

0 to 6 inches—very dark brown gravelly loam

6 to 16 inches—very dark brown very gravelly loam

16 to 22 inches—very dark grayish brown gravelly loam

22 to 49 inches—very dark grayish brown very gravelly loam

49 to 60 inches—dark grayish brown extremely stony sandy loam



### ***Properties and Qualities of Slicklog***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Eastpine***

1 inch to 0—slightly decomposed leaves, moss, and twigs

0 to 14 inches—very dark brown very cobbly loam

14 to 26 inches—brown very gravelly sandy loam

26 to 38 inches—brown very cobbly sandy loam

38 inches—metasedimentary rock

### ***Properties and Qualities of Eastpine***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Tolo soils concave backslopes
- Wintercanyon soils on convex backslopes

### ***Major Use***

Slicklog and Eastpine—timber production

### ***Major Management Limitations***

Slicklog and Eastpine—sheet and rill erosion, equipment limitations, soil compaction, cut and fill erosion, soil displacement, puddling, dustiness

Eastpine—seedling mortality, windthrow, plant competition

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Unsurfaced roads on the Slicklog soil are soft when wet.
- Unsurfaced roads on the Eastpine soil are firm when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because the Eastpine soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees on the Eastpine soil may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation on the Eastpine soil.

## **278—Slicklog-Wintercanyon-Rock outcrop complex, 60 to 90 percent north slopes**

### ***Composition***

*Slicklog and similar soils*—50 percent

*Wintercanyon and similar soils*—25 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Slicklog—north-facing concave middle backslopes;  
Wintercanyon—north-facing narrow convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Mountains

*Parent material:* Slicklog—volcanic ash and colluvium derived from shale, argillite, or conglomerate; Wintercanyon—colluvium and residuum derived from metasedimentary rock

*Elevation:* 3,800 to 5,400 feet

*Native plants:* Slicklog—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Wintercanyon—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 85 days

### ***Typical Profile of Slicklog***

1 inch to 0—partially decomposed twigs and needles

0 to 6 inches—very dark brown gravelly loam

6 to 16 inches—very dark brown very gravelly loam

16 to 22 inches—very dark grayish brown gravelly loam

22 to 49 inches—very dark grayish brown very gravelly loam

49 to 60 inches—dark grayish brown extremely stony sandy loam

### ***Properties and Qualities of Slicklog***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 40 to 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 8 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Wintercanyon***

1 inch to 0—partially decomposed twigs, grass, and needles

0 to 9 inches—very dark brown very gravelly silt loam

9 to 18 inches—very dark brown very gravelly loam

18 inches—metasedimentary rock

### ***Properties and Qualities of Wintercanyon***

*Depth to bedrock:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1 inch

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Eastpine soils on convex backslopes
- Tolo soils on concave backslopes

### ***Major Use***

Slicklog and Wintercanyon—timber production

### ***Major Management Limitations***

Slicklog and Wintercanyon—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Wintercanyon—seedling mortality, windthrow, fire damage

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails on the Slicklog soil are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads and skid trails on the Wintercanyon soil are dusty when dry.
- Because the Wintercanyon soil is droughty, mortality of tree seedlings can be expected.
- Because of the depth to bedrock, trees on the Wintercanyon soil may be blown down when the soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity on the Wintercanyon soil may result in the loss of soil, loss of nutrients, and water repellency.

## ***279—Snell silty clay loam, 3 to 8 percent slopes***

### ***Composition***

*Snell and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Central portions of summits

*Landform:* Plateaus, structural benches

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 4,100 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches  
 Mean annual air temperature—42 to 45 degrees F  
 Frost-free period—70 to 100 days

***Typical Profile of Snell***

0 to 4 inches—black silty clay loam  
 4 to 9 inches—very dark brown stony silty clay loam  
 9 to 18 inches—dark brown very stony clay loam  
 18 to 24 inches—dark brown extremely stony clay loam  
 24 inches—basalt

***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Slight  
*Shrink-swell potential:* Moderate

***Contrasting Inclusions***

- Demasters soils on adjacent concave backslopes
- Harlow soils on shoulders
- Rock outcrop on shoulders

***Major Use***

Livestock grazing

***Major Management Limitations***

Available water capacity, permeability, shrink-swell potential, water erosion, depth to clayey layers, stones in lower layers

***General Management Considerations*****Livestock grazing**

- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Droughtiness may limit the success of seedlings and the choice of species for seedlings.
- The upper layer is saturated following snowmelt.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

***280—Snell-Harlow complex, 2 to 15 percent slopes******Composition***

*Snell and similar soils*—65 percent  
*Harlow and similar soils*—25 percent  
*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Central portions of summits

*Landform:* Plateaus, structural benches

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Powwatka soils on gentle backslopes
- Rock outcrop on shoulders

### ***Major Use***

Snell and Harlow—livestock grazing

### ***Major Management Limitations***

Snell and Harlow—available water capacity, permeability, shrink-swell potential, water erosion, depth to clayey layers, stones on soil surface

Harlow—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the soils may limit the success of seedings and the choice of species for seedings.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness.
- The stony upper layer restricts the operation of ground seeding equipment.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

### ***281—Snell-Harlow complex, 15 to 30 percent north slopes***

#### ***Composition***

*Snell and similar soils*—60 percent

*Harlow and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Snell—north-facing footslopes and concave backslopes;

Harlow—north-facing shoulders and convex backslopes

*Landform:* Hills

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

#### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
4 to 8 inches—very dark grayish brown very cobbly clay loam  
8 to 16 inches—dark brown extremely cobbly clay  
16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker soils on shoulders
- Rock outcrop scattered throughout and on shoulders
- Powwatka soils on middle backslopes
- Hurwal soils on footslopes

### ***Major Use***

Snell and Harlow—livestock grazing

### ***Major Management Limitations***

Snell and Harlow—water erosion, permeability, available water capacity, shrink-swell potential, depth to clayey layers, stones on soil surface  
Harlow—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness of the soils may limit the success of seedlings and the choice of species for seedlings.
- The stony upper layer restricts the operation of ground seeding equipment.
- Slope restricts the operation of ground seeding equipment.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.



- The low annual precipitation limits production and seasonal availability of forage.

## **282—Snell-Harlow complex, 30 to 60 percent north slopes**

### ***Composition***

*Snell and similar soils*—45 percent

*Harlow and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Snell—north-facing concave backslopes; Harlow—north-facing convex backslopes

*Landform:* Hills

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Hurwal soils on concave backslopes

### ***Major Use***

Snell and Harlow—livestock grazing

### ***Major Management Limitations***

Snell and Harlow—water erosion, permeability, available water capacity, shrink-swell potential, depth to clayey layers, stones on soil surface

Harlow—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

## ***283—Snell-Harlow complex, 15 to 30 percent south slopes***

### ***Composition***

*Snell and similar soils*—55 percent

*Harlow and similar soils*—30 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Snell—south-facing footslopes and concave backslopes;

Harlow—south-facing shoulders and convex backslopes

*Landform:* Hills

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Snell—bluebunch wheatgrass, Idaho fescue; Harlow—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam  
 18 to 24 inches—dark brown extremely stony clay loam  
 24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
 4 to 8 inches—very dark grayish brown very cobbly clay loam  
 8 to 16 inches—dark brown extremely cobbly clay  
 16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker soils on shoulders
- Rock outcrop scattered throughout and on shoulders

### ***Major Use***

Snell and Harlow—livestock grazing

### ***Major Management Limitations***

Snell and Harlow—water erosion, permeability, available water capacity, shrink-swell potential, depth to clayey layers, stones on soil surface  
 Harlow—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness of the soils may limit the success of seedings and the choice of species for seedings.

- The stony upper layer restricts the operation of ground seeding equipment.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness.
- Slope restricts the operation of ground seeding equipment.
- These soils are on warmer south-facing slopes; therefore, the growing season starts earlier and ends sooner than on the north-facing slopes.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

### **284—Snell-Harlow silt loams complex, 0 to 15 percent slopes**

#### ***Composition***

*Snell and similar soils*—65 percent

*Harlow and similar soils*—25 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Snell—slightly concave summits; Harlow—adjacent to areas of Rock outcrop or on slightly convex summits

*Landform:* Plateaus, structural benches

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Snell***

0 to 4 inches—black silt loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

#### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown silt loam

4 to 8 inches—very dark grayish brown silt loam

8 to 16 inches—dark brown extremely cobbly clay  
 16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layer:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Powwatka soils on gentle backslopes
- Rock outcrop on shoulders
- Wallowa soils on mounds and Bocker soils in intermounds of adjacent slightly higher patterned ground

### ***Major Use***

Snell and Harlow—livestock grazing

### ***Major Management Limitations***

Snell and Harlow—available water capacity, permeability, shrink-swell potential, water erosion, depth to clayey layers  
 Snell—stones in lower layers  
 Harlow—cobbles in lower layer, depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- Droughtiness of the soils may limit the success of seedlings and the choice of species for seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

## ***285—Snell-Harlow-Imnaha complex, moist, 15 to 30 percent north slopes***

### ***Composition***

*Snell and similar soils*—35 percent  
*Harlow and similar soils*—25 percent  
*Imnaha and similar soils*—25 percent  
*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position:* Snell—north-facing middle backslopes; Harlow—north-facing shoulders and convex backslopes; Imnaha—north-facing footslopes and concave backslopes

*Landform:* Canyons

*Parent material:* Harlow and Snell—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Snell and Imnaha—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### **Typical Profile of Snell**

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

### **Properties and Qualities of Snell**

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### **Typical Profile of Harlow**

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### **Properties and Qualities of Harlow**

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### **Typical Profile of Imnaha**

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Bocker soils on shoulders
- Rock outcrop scattered throughout
- Albee soils on mounds and Bocker soils on intermounds of sloping structural benches
- Cherrycreek soils on footslopes

### ***Major Use***

Snell, Harlow, and Imnaha—livestock grazing

### ***Major Management Limitations***

Snell, Harlow, and Imnaha—water erosion, cool winter temperatures

Snell and Harlow—depth to clayey layers, shrink-swell potential, very stony surface, available water capacity

Harlow—depth to bedrock, water erosion

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cold soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The clayey layers in the Snell and Harlow soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The very stony upper layer of the Snell and Harlow soils restricts the operation of ground seeding equipment.
- Droughtiness of the Snell and Harlow soils may limit the success of seedings and the choice of species for seedings.
- Seeding areas of the Snell and Harlow soils that are in poor condition is difficult because of the soil depth or stoniness, or both.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.

## ***286—Snell-Harlow-Imnaha complex, moist, 30 to 60 percent north slopes***

### ***Composition***

*Snell and similar soils*—35 percent

*Harlow and similar soils*—25 percent



*Imnaha and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Snell—north-facing backslopes; Harlow—north-facing convex backslopes; Imnaha—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Harlow and Snell—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Snell and Imnaha—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam

5 to 17 inches—very dark gray gravelly silt loam

17 to 21 inches—very dark grayish brown very gravelly silt loam

21 to 24 inches—dark brown very gravelly loam

24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Rock outcrop on convex backslopes scattered throughout
- Cherrycreek soils on concave backslopes

### ***Major Use***

Snell, Harlow, and Imnaha—livestock grazing

### ***Major Management Limitations***

Snell, Harlow, and Imnaha—water erosion, cool winter temperatures

Snell and Harlow—depth to clayey layers, shrink-swell potential, very stony surface,  
available water capacity

Harlow—depth to bedrock, water erosion

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The clayey layers in the Snell and Harlow soils restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.

## ***287—Snell-Harlow-Rock outcrop complex, 60 to 90 percent north slopes***

### ***Composition***

*Snell and similar soils*—40 percent

*Harlow and similar soils*—30 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Snell—north-facing concave backslopes between exposures of basalt; Harlow—north-facing convex backslopes between exposures of basalt; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Hills

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Snell—Idaho fescue, bluebunch wheatgrass; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker soils on convex backslopes
- Hurwal soils on concave backslopes

### ***Major Use***

Snell and Harlow—livestock grazing

### ***Major Management Limitations***

Snell, Harlow, and Rock outcrop—slope

Snell and Harlow—water erosion, available water capacity, permeability, shrink-swell potential, depth to clayey layers, stones on soil surface

Harlow—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the Harlow soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

### ***288—Snell-Imnaha-Rock outcrop complex, moist, 60 to 90 percent north slopes***

#### ***Composition***

*Snell and similar soils*—35 percent

*Imnaha and similar soils*—25 percent

*Rock outcrop*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Snell—north-facing convex backslopes; Imnaha—north-facing concave backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Canyons

*Parent material:* Snell—loess and colluvium derived from basalt; Imnaha—mixed volcanic ash and loess over colluvium and residuum derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Snell and Imnaha—mallow ninebark, common snowberry, rose, Idaho fescue, Saskatoon serviceberry

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Snell***

0 to 4 inches—black very stony loam

4 to 9 inches—very dark brown stony clay loam

9 to 18 inches—dark brown very stony clay loam

18 to 24 inches—dark brown extremely stony clay loam

24 inches—basalt

#### ***Properties and Qualities of Snell***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

### ***Typical Profile of Imnaha***

0 to 5 inches—black gravelly silt loam  
5 to 17 inches—very dark gray gravelly silt loam  
17 to 21 inches—very dark grayish brown very gravelly silt loam  
21 to 24 inches—dark brown very gravelly loam  
24 inches—basalt

### ***Properties and Qualities of Imnaha***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 12 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Cherrycreek soils on concave backslopes
- Harlow and Bocker soils on convex backslopes

### ***Major Use***

Snell and Imnaha—livestock grazing

### ***Major Management Limitations***

Snell, Imnaha, and Rock outcrop—slope  
Snell and Imnaha—water erosion, cool winter temperatures  
Snell—depth to clayey layers, shrink-swell potential, very stony surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The clayey lower layers in the Snell soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.

## ***289—Snow silt loam, 0 to 3 percent slopes***

### ***Composition***

*Snow and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Nearly level areas

*Landform:* Terraces

*Parent material:* Loess and alluvium

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Basin wildrye, bluebunch wheatgrass, willow, bluegrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 18 inches—very dark brown silt loam

18 to 36 inches—very dark grayish brown silt loam

36 to 57 inches—brown silt loam

57 to 60 inches—dark grayish brown silt loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 12 inches

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Phys soils on fans
- Langrell soils in depressions
- Areas adjacent to streambanks that may support trees such as willow, cottonwood, or hawthorn
- Schrier soils on footslopes
- Gelsinger soils on fans

### ***Major Uses***

Irrigated cropland, hay and pasture, homesites

### ***Major Management Limitation***

Mean annual precipitation

### ***General Management Considerations***

#### ***Irrigated cropland and hay and pasture***

- Other than climate, this soil has few limitations for these uses.

#### ***Homesites***

- Unsurfaced roads are dusty when dry.

## ***290—Sopher stony loam, 15 to 30 percent south slopes***

### ***Composition***

*Sopher and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* South-facing backslopes and footslopes

*Landform:* Canyons

*Parent material:* Mixed volcanic ash and loess over clayey colluvium derived from basalt

*Elevation:* 2,300 to 4,000 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile***

1 inch to 0—slightly decomposed twigs and needles

0 to 2 inches—very dark grayish brown stony loam

2 to 8 inches—dark brown gravelly loam

8 to 18 inches—brown gravelly clay loam

18 to 24 inches—brown very gravelly clay

24 to 44 inches—brown very gravelly clay

44 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Klicker soils on upper backslopes
- Gwinly soils on shoulders and convex backslopes
- Mallory soils on middle backslopes
- Emily soils on footslopes
- Klickson soils on slightly north-facing backslopes in the Powwatka Ridge area

### ***Major Use***

Timber production

### ***Major Management Limitations***

Permeability, shrink-swell potential, water erosion, depth to clayey layers, dustiness, soil compaction, seedling mortality, puddling, plant competition, fire damage, dustiness

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.



- Unsurfaced roads on hillsides are sticky when wet because of clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## **291—Sopher stony loam, 30 to 60 percent south slopes**

### **Composition**

*Sopher and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### **Setting**

*Landscape position*: South-facing backslopes

*Landform*: Canyons

*Parent material*: Mixed volcanic ash and loess over clayey colluvium derived from basalt

*Elevation*: 2,300 to 4,000 feet

*Native plants*: Douglas fir, ponderosa pine, creambush oceanspray, mallow ninebark, common snowberry, shinyleaf spirea, rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### **Typical Profile**

1 inch to 0—slightly decomposed twigs and needles

0 to 2 inches—very dark grayish brown stony loam

2 to 8 inches—dark brown gravelly loam

8 to 18 inches—brown gravelly clay loam

18 to 24 inches—brown very gravelly clay

24 to 44 inches—brown very gravelly clay

44 inches—basalt

### **Soil Properties and Qualities**

*Depth to bedrock*: 40 to 60 inches

*Thickness of volcanic ash influence*: Extends to a depth of 10 to 20 inches

*Depth to clayey layers*: 10 to 20 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 6 inches

*Hazard of erosion*: Severe

*Shrink-swell potential*: High

### **Contrasting Inclusions**

- Klicker soils on upper backslopes
- Gwinly soils in nonforested areas on backslopes
- Mallory soils on middle backslopes
- Emily soils on concave backslopes

### **Major Use**

Timber production

### **Major Management Limitations**

Slope, water erosion, permeability, shrink-swell potential, water erosion, depth to

clayey layers, dustiness, soil compaction, seedling mortality, plant competition, fire damage

### ***General Management Considerations***

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***292—Sopher-Gwinly complex, 30 to 60 percent north slopes***

### ***Composition***

*Sopher and similar soils*—60 percent

*Gwinly and similar soils*—25 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Sopher—north-facing concave backslopes; Gwinly—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt; Gwinly—loess and colluvium derived from basalt

*Elevation:* 1,700 to 2,800 feet

*Native plants:* Sopher—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Gwinly—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles  
 0 to 2 inches—very dark grayish brown stony loam  
 2 to 8 inches—dark brown gravelly loam  
 8 to 18 inches—brown gravelly clay loam  
 18 to 24 inches—brown very gravelly clay  
 24 to 44 inches—brown very gravelly clay  
 44 inches—basalt

### ***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay

17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Gwin soils on convex backslopes
- Mallory soils on middle backslopes
- Emily soils on concave backslopes

### ***Major Uses***

Sopher—timber production

Gwinly—livestock grazing

### ***Major Management Limitations***

Sopher and Gwinly—slope, water erosion, permeability, shrink-swell potential, depth to clayey layers

Sopher—soil compaction, equipment operability, soil displacement, plant competition, fire damage, dustiness

Gwinly—depth to bedrock, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.

- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of clay in the lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **293—Sopher-Gwinly complex, 15 to 30 percent south slopes**

#### ***Composition***

*Sopher and similar soils*—50 percent

*Gwinly and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Sopher—south-facing footslopes and concave backslopes;

Gwinly—south-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt; Gwinly—loess and colluvium derived from basalt

*Elevation:* 2,300 to 4,000 feet

*Native plants:* Sopher—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, arrowleaf balsamroot

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

#### ***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles

0 to 2 inches—very dark grayish brown stony loam

2 to 8 inches—dark brown gravelly loam

8 to 18 inches—brown gravelly clay loam

18 to 24 inches—brown very gravelly clay

24 to 44 inches—brown very gravelly clay

44 inches—basalt

#### ***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

#### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay  
 17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 13 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Klicker soils on upper backslopes
- Mallory soils on middle backslopes
- Emily soils on footslopes

### ***Major Uses***

Sopher—timber production  
 Gwinly—livestock grazing

### ***Major Management Limitations***

Sopher and Gwinly—water erosion, permeability, shrink-swell potential, depth to clayey layers  
 Gwinly—depth to bedrock, available water capacity  
 Sopher—soil compaction, equipment operability, seedling mortality, plant competition, fire damage, dustiness

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness may limit the success of seedings and the choice of species for broadcast seedings following natural fires of high intensity.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.

- Unsurfaced roads on hillsides are sticky when wet because of the clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## **294—Sopher-Gwinly complex, 30 to 60 percent south slopes**

### ***Composition***

*Sopher and similar soils*—50 percent

*Gwinly and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Sopher—south-facing concave backslopes; Gwinly—south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Sopher—mixed volcanic ash and loess over clayey colluvium derived from basalt; Gwinly—loess and colluvium derived from basalt

*Elevation:* 2,300 to 4,000 feet

*Native plants:* Sopher—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Gwinly—bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 150 days

### ***Typical Profile of Sopher***

1 inch to 0—slightly decomposed twigs and needles

0 to 2 inches—very dark grayish brown stony loam

2 to 8 inches—dark brown gravelly loam

8 to 18 inches—brown gravelly clay loam

18 to 24 inches—brown very gravelly clay

24 to 44 inches—brown very gravelly clay

44 inches—basalt

### ***Properties and Qualities of Sopher***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Depth to clayey layers:* 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Gwinly***

0 to 4 inches—very dark brown very cobbly silt loam

4 to 10 inches—dark brown very cobbly silty clay loam

10 to 17 inches—dark yellowish brown extremely cobbly clay

17 inches—basalt

### ***Properties and Qualities of Gwinly***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 6 to 13 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 2 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Klicker soils on upper backslopes
- Mallory soils on middle backslopes
- Emily soils on concave backslopes

### ***Major Uses***

Sopher—timber production

Gwinly—livestock grazing

### ***Major Management Limitations***

Sopher and Gwinly—slope, water erosion, permeability, shrink-swell potential, depth to clayey layers

Gwinly—depth to bedrock, available water capacity

Sopher—dustiness, puddling, seedling mortality, soil compaction, equipment operability, soil displacement, plant competition, fire damage

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- The bedrock restricts the rooting depth.
- The shallow depth limits the use of conventional fencing and makes special design of fences necessary.
- The clayey lower layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Droughtiness may limit the success of seedlings and the choice of species for broadcast seedings following natural fires of high intensity.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- The soil is susceptible to being pushed from its natural position during equipment operations.
- Because the soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.



- Unsurfaced roads on hillsides are sticky when wet because of the clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## **295—Sturgill silt loam, 0 to 2 percent slopes**

### ***Composition***

*Sturgill and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Depressions parallel to but not immediately adjacent to stream channels

*Landform:* Flood plains

*Parent material:* Silty alluvium

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Sedge, tufted hairgrass, rush

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 8 inches—black silt loam

8 to 18 inches—black silty clay loam

18 to 23 inches—dark grayish brown, mottled silty clay loam

23 to 30 inches—dark grayish brown silt loam

30 to 38 inches—light brownish gray silt loam

38 to 44 inches—very dark grayish brown silty clay loam

44 to 60 inches—dark greenish gray silt loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Poorly drained

*Depth to water table (apparent):* 0.5 to 1.0 foot in March through June

*Permeability:* Moderately slow

*Available water capacity:* About 12 inches

*Frequency of flooding:* Occasional in April through July

*Hazard of erosion:* Slight

*Potential frost action:* Severe

*Shrink-swell potential:* Moderate

### ***Contrasting Inclusions***

- Josset soils on slightly higher flood plains
- Cheval soils in depressions of flood plains

### ***Major Use***

Hay and pasture

### ***Major Management Limitations***

High water table, flooding, permeability, frost heaving

### ***General Management Considerations***

#### **Hay and pasture**

- Wetness restricts production to shallow-rooted, water-tolerant plants.
- Periodic flooding and seasonal wetness limit forage production to water-tolerant plants.
- Wetness limits the choice of adapted plants and increases the risk of winterkill due to frost action.

### ***296—Sturgill-Eggleston complex, 0 to 2 percent slopes***

#### ***Composition***

*Sturgill and similar soils*—45 percent

*Eggleston and similar soils*—40 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Sturgill—slightly concave areas parallel to stream channels;

Eggleston—slightly convex areas

*Landform:* Flood plains

*Parent material:* Sturgill—silty alluvium; Eggleston—mixed alluvium

*Elevation:* 3,400 to 4,400 feet

*Native plants:* Sturgill—sedge, tufted hairgrass, rush; Eggleston—basin wildrye, willow, bluegrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Sturgill***

0 to 8 inches—black silt loam

8 to 18 inches—black silty clay loam

18 to 23 inches—dark grayish brown, mottled silty clay loam

23 to 30 inches—dark grayish brown silt loam

30 to 38 inches—light brownish gray silt loam

38 to 44 inches—very dark grayish brown silty clay loam

44 to 60 inches—dark greenish gray silt loam

#### ***Properties and Qualities of Sturgill***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Poorly drained

*Depth to water table (apparent):* 0.5 to 1.0 foot in March through June

*Permeability:* Moderately slow

*Available water capacity:* About 12 inches

*Frequency of flooding:* Occasional in April through July

*Hazard of erosion:* Slight

*Potential frost action:* Severe

#### ***Typical Profile of Eggleston***

0 to 3 inches—very dark brown gravelly loam

3 to 10 inches—very dark grayish brown very gravelly sandy loam

10 to 17 inches—very dark grayish brown extremely gravelly loamy sand

17 to 30 inches—multicolored extremely gravelly sand

30 to 60 inches—multicolored, mottled extremely gravelly sand

### ***Properties and Qualities of Eggleston***

*Depth to bedrock:* More than 60 inches

*Drainage class:* Moderately well drained

*Depth to water table:* 2 to 3 feet in March through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 3 inches

*Frequency of flooding:* Rare

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Josset soils on slightly higher flood plains
- Cheval soils in depressions of flood plains

### ***Major Use***

Sturgill and Eggleston—hay and pasture

### ***Major Management Limitations***

Sturgill and Eggleston—high water table, flooding, permeability

Sturgill—frost heaving

Eggleston—available water capacity, gravel on soil surface, depth to extremely gravelly layers

### ***General Management Considerations***

#### ***Hay and pasture***

- Wetness of the Sturgill soil restricts production to shallow-rooted, water-tolerant plants.
- Periodic flooding and seasonal wetness of the Sturgill soil limits forage production to water-tolerant plants.
- Wetness of the Sturgill soil limits the choice of adapted plants and increases the risk of winterkill due to frost action.
- The very rapid permeability of the Eggleston soil increases the risk of deep percolation of irrigation water below the root zone.
- The restricted available moisture in the Eggleston soil limits production to drought-tolerant crops.
- The seepage potential in the Eggleston soil limits construction of water impoundments.
- The seasonal high water table in the Eggleston soil provides supplemental moisture for plants.

## ***297—Sweitberg silt loam, 2 to 8 percent slopes***

### ***Composition***

*Sweitberg and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Gently sloping central portion of summits

*Landform:* Plateaus, structural benches

*Parent material:* Loess over colluvium and residuum derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 18 inches—very dark brown silt loam

18 to 20 inches—very dark grayish brown silty clay loam

20 to 29 inches—dark brown clay

29 to 35 inches—dark brown very cobbly clay

35 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 15 to 25 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

*Potential frost action:* Moderate

*Corrosivity to uncoated steel:* Moderate

### ***Contrasting Inclusions***

- Snell soils on shoulders
- Harlow soils on shoulders

### ***Major Uses***

Nonirrigated cropland, livestock grazing, homesites

### ***Major Management Limitations***

Permeability, depth to clayey layers, shrink-swell potential, depth to bedrock, water erosion, frost heaving, dustiness

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- A tillage pan forms easily if the soil is excessively cultivated.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Livestock grazing**

- The upper layer is saturated following snowmelt.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Excavation is hampered by the limited depth to bedrock.
- Septic tank absorption fields may function poorly because of limited permeability, which restricts the movement and filtration of the effluent, and the limited depth to bedrock.
- Because of the slow permeability, special design of absorption lines may be needed.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.

- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- Unsurfaced roads are dusty when dry.

## **298—Sweitberg silt loam, 8 to 15 percent slopes**

### ***Composition***

*Sweitberg and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position*: Fault-tilted summits

*Landform*: Plateaus, structural benches

*Parent material*: Loess over colluvium and residuum derived from basalt

*Elevation*: 3,400 to 4,500 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass, prairie junegrass

*Climatic factors*:

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 18 inches—very dark brown silt loam

18 to 20 inches—very dark grayish brown silty clay loam

20 to 29 inches—dark brown clay

29 to 35 inches—dark brown very cobbly clay

35 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock*: 20 to 40 inches

*Depth to clayey layers*: 15 to 25 inches

*Drainage class*: Well drained

*Permeability*: Slow

*Available water capacity*: About 6 inches

*Hazard of erosion*: Moderate

*Shrink-swell potential*: High

*Potential frost action*: Moderate

*Corrosivity to uncoated steel*: Moderate

### ***Contrasting Inclusions***

- Snell soils on shoulders
- Harlow soils on shoulders

### ***Major Uses***

Nonirrigated cropland, livestock grazing, homesites

### ***Major Management Limitations***

Permeability, depth to clayey layers, shrink-swell potential, depth to bedrock, water erosion, frost heaving

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- A tillage pan forms easily if the soil is excessively cultivated.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Livestock grazing**

- The upper layer is saturated following snowmelt.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Excavation is hampered by the limited depth to bedrock.
- Septic tank absorption fields may function poorly because of the limited permeability, which restricts the movement and filtration of the effluent, and the limited depth to bedrock.
- Because of the slow permeability, special design of absorption lines may be needed.
- Untreated effluent can move along the surface of the restrictive layer and seep in downslope areas, creating a hazard to health.
- The quality of roadbeds and road surfaces can be adversely affected by shrinking and swelling and frost action.
- The soil expands when wet and contracts when dry, which can damage structures and plant roots.
- Cutbanks are not stable and therefore are subject to slumping.
- The deep cuts needed to level the road surface can expose hard bedrock that is difficult to excavate.
- The steepness of slope may make special design of absorption lines necessary.
- Unsurfaced roads are dusty when dry.

## ***299—Sweiting silt loam, 2 to 15 percent slopes***

### ***Composition***

*Sweiting and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Central portion and shoulders of north-facing fault-tilted summits

*Landform:* Plateaus, structural benches

*Parent material:* Loess over basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 4 inches—very dark brown silt loam

4 to 8 inches—very dark grayish brown silt loam

8 to 13 inches—dark brown silty clay loam

13 to 22 inches—dark brown clay  
 22 to 32 inches—dark brown gravelly clay  
 32 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 8 to 15 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Harlow soils on shoulders
- Bocker soils on shoulders
- Rock outcrop on shoulders
- Klicker soils scattered throughout summits

### ***Major Use***

Timber production

### ***Major Management Limitations***

Permeability, soil compaction, shrink-swell potential, water erosion, available water capacity, depth to clayey layers, seedling mortality, plant competition, windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong because of the clay in the lower layers.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are dusty when dry.

## ***300—Sweiting silt loam, 15 to 30 percent north slopes***

### ***Composition***

*Sweiting and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes  
*Landform:* Plateaus, structural benches  
*Parent material:* Loess over basalt  
*Elevation:* 3,400 to 4,500 feet  
*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica  
*Climatic factors:*  
     Mean annual precipitation—17 to 24 inches  
     Mean annual air temperature—42 to 45 degrees F  
     Frost-free period—70 to 100 days



### ***Typical Profile***

0 to 4 inches—very dark brown silt loam  
 4 to 8 inches—very dark grayish brown silt loam  
 8 to 13 inches—dark brown silty clay loam  
 13 to 22 inches—dark brown clay  
 22 to 32 inches—dark brown gravelly clay  
 32 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 8 to 15 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Harlow soils on shoulders
- Bocker soils on shoulders
- Rock outcrop on shoulders
- Getaway soils on footslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Water erosion, permeability, soil compaction, shrink-swell potential, available water capacity, depth to clayey layers

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Trees may be blown down when the soil is wet and winds are strong because of the clay in the lower layers.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are sticky when wet because of the clay in the lower layer. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***301—Sweiting-Harlow complex, 2 to 15 percent slopes***

### ***Composition***

*Sweiting and similar soils*—50 percent  
*Harlow and similar soils*—40 percent  
*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Sweiting—footslopes and concave summits; Harlow—shoulders and convex summits

*Landform:* Plateaus, structural benches

*Parent material:* Sweiting—loess over basalt; Harlow—loess over colluvium derived from basalt

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Sweiting—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Harlow—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Sweiting***

0 to 4 inches—very dark brown silt loam

4 to 8 inches—very dark grayish brown silt loam

8 to 13 inches—dark brown silty clay loam

13 to 22 inches—dark brown clay

22 to 32 inches—dark brown gravelly clay

32 inches—basalt

### ***Properties and Qualities of Sweiting***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 8 to 15 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker soils on shoulders
- Rock outcrop on shoulders and convex backslopes
- Klicker soils on footslopes

### ***Major Uses***

Sweiting—timber production

Harlow—livestock grazing

### ***Major Management Limitations***

Sweiting and Harlow—permeability, shrink-swell potential, available water capacity,

depth to bedrock, water erosion, depth to clayey layers  
 Sweiting—soil compaction, plant competition, seedling mortality, windthrow  
 Harlow—stones on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Droughtiness may limit the success of seedlings and the choice of species for range seedlings.
- The upper layer is saturated following snowmelt.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is droughty, mortality of tree seedlings can be expected.
- Trees may be blown down when the soil is wet and winds are strong because of the clay in the lower layers.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

## ***302—Sweiting-Harlow complex, 15 to 30 percent south slopes***

### ***Composition***

*Sweiting and similar soils*—50 percent

*Harlow and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Sweiting—south-facing footslopes and concave backslopes;

Harlow—south-facing shoulders and convex backslopes

*Landform:* Plateaus, structural benches

*Parent material:* Sweiting—loess over basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 4,000 to 5,000 feet

*Native plants:* Sweiting—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Sweiting***

0 to 4 inches—very dark brown silt loam  
4 to 8 inches—very dark grayish brown silt loam  
8 to 13 inches—dark brown silty clay loam  
13 to 22 inches—dark brown clay  
22 to 32 inches—dark brown gravelly clay  
32 inches—basalt

### ***Properties and Qualities of Sweiting***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 8 to 15 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 5 inches—very dark brown very stony loam  
5 to 9 inches—dark reddish brown very stony loam  
9 to 13 inches—very dark grayish brown very cobbly clay  
13 to 18 inches—dark reddish brown extremely cobbly clay  
18 inches—fractured basalt

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 6 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Bocker soils on shoulders and convex backslopes
- Rock outcrop on shoulders
- Anatone soils on shoulders and convex backslopes
- Klicker soils on footslopes and concave backslopes

### ***Major Uses***

Sweiting—timber production  
Harlow—livestock grazing

### ***Major Management Limitations***

Sweiting and Harlow—permeability, shrink-swell potential, water erosion, dry southern exposures, depth to clayey layers  
Sweiting—soil compaction, equipment operability, plant competition, windthrow  
Harlow—stones on soil surface, depth to bedrock, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.

- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- Droughtiness of the soil may limit the success of seedlings and the choice of species for range seedings.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Trees may be blown down when the soil is wet and winds are strong because of the clay in the lower layers and the depth to bedrock.
- Unsurfaced roads on hillsides are sticky when wet because of clay in the lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.

### ***303—Sweiting-Klicker complex, 15 to 30 percent south slopes***

#### ***Composition***

*Sweiting and similar soils*—50 percent

*Klicker and similar soils*—40 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Sweiting—south-facing shoulders and convex backslopes;

Klicker—south-facing footslopes and concave backslopes

*Landform:* Plateaus, structural benches

*Parent material:* Sweiting—loess over basalt; Klicker—loess and colluvium derived from basalt with an influence of volcanic ash in the upper part

*Elevation:* 4,000 to 4,500 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Sweiting***

0 to 4 inches—very dark brown silt loam

4 to 8 inches—very dark grayish brown silt loam

8 to 13 inches—dark brown silty clay loam

13 to 22 inches—dark brown clay

22 to 32 inches—dark brown gravelly clay  
32 inches—basalt

### ***Properties and Qualities of Sweiting***

*Depth to bedrock:* 20 to 40 inches  
*Depth to clayey layers:* 8 to 15 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Klicker***

1 inch to 0—mostly undecomposed pine needles  
0 to 3 inches—very dark grayish brown stony silt loam  
3 to 10 inches—dark brown cobbly silt loam  
10 to 18 inches—dark brown very cobbly silty clay loam  
18 to 24 inches—dark brown extremely cobbly silty clay loam  
24 inches—basalt

### ***Properties and Qualities of Klicker***

*Depth to bedrock:* 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 3 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Snell soils on footslopes and concave backslopes
- Harlow soils on shoulders and convex backslopes
- Rock outcrop on shoulders and convex backslopes
- Kamela soils on footslopes and concave backslopes

### ***Major Use***

Sweiting and Klicker—timber production

### ***Major Management Limitations***

Sweiting and Klicker—water erosion, available water capacity, permeability, soil compaction, equipment operability, plant competition, windthrow  
Sweiting—shrink-swell potential, depth to clayey layers  
Klicker—stones on soil surface, seedling mortality, fire damage

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Uncontrolled competing vegetation may retard reforestation.
- Trees on the Klicker soil may be blown down when the soil is wet and winds are strong.
- Trees on the Sweiting soil may be blown down when the soil is wet and winds are strong because of the clay in the lower layers.

- Unsurfaced roads on the Sweiting soil on hillsides are sticky when wet because of the clay in the lower layers. Skid trails are soft when wet.
- Unsurfaced roads on the Klicker soil on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Prescribed burning or natural fires of moderate intensity on the Klicker soil may result in the loss of soil, loss of nutrients, and water repellency.
- Because the Klicker soil is droughty, mortality of tree seedlings can be expected.

### **304—Syrupcreek silt loam, 0 to 15 percent slopes**

#### ***Composition***

*Syrupcreek and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Summits

*Landform:* Plateaus

*Parent material:* Volcanic ash and loess over colluvium and residuum derived from basalt or andesitic tuff breccia

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### ***Typical Profile***

1 inch to 0—partially decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 22 inches—dark brown very cobbly loam

22 to 28 inches—dark brown very stony clay loam

28 inches—basalt

#### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

#### ***Contrasting Inclusions***

- Limberjim and Tamara soils in concave areas on summits
- Anatone soils in convex areas on summits

#### ***Major Use***

Timber production

#### ***Major Management Limitations***

Soil compaction, windthrow, plant competition, puddling, dustiness



### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***305—Syrupcreek-Anatone complex, 0 to 15 percent slopes***

#### ***Composition***

*Syrupcreek and similar soils*—60 percent

*Anatone and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Syrupcreek—convex summits; Anatone—concave summits

*Landform:* Plateaus

*Parent material:* Syrupcreek—volcanic ash and loess over colluvium and residuum derived from basalt or andesitic tuff breccia; Anatone—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Syrupcreek—grand fir, Douglas fir, Engelmann spruce, big huckleberry, prince's pine, elk sedge, heartleaf arnica, pinegrass, western rattlesnake plantain; Anatone—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—20 to 35 inches

Mean annual air temperature—42 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### ***Typical Profile of Syrupcreek***

1 inch to 0—partially decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 22 inches—dark brown very cobbly loam

22 to 28 inches—dark brown very stony clay loam

28 inches—basalt

#### ***Properties and Qualities of Syrupcreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* Moderate

### ***Typical Profile of Anatone***

0 to 3 inches—very dark grayish brown very stony silt loam  
 3 to 6 inches—very dark grayish brown very cobbly silt loam  
 6 to 12 inches—dark brown very cobbly silty clay loam  
 12 inches—basalt

### ***Properties and Qualities of Anatone***

*Depth to bedrock:* 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 2 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Limberjim and Tamara soils in convex areas of summits
- Bocker soils in concave areas of summits

### ***Major Uses***

Syrupcreek—timber production  
 Anatone—livestock grazing

### ***Major Management Limitations***

Syrupcreek—soil compaction, windthrow, plant competition, puddling, dustiness  
 Anatone—depth to bedrock, permeability, water erosion, very stony soil surface, available water capacity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the soil limits construction of water impoundments.
- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Livestock tend to graze in the less stony areas.
- The very stony upper layer of the soil restricts the operation of ground seeding equipment.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- Seeding areas that are in poor condition is difficult because of the soil depth or stoniness, or both.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.
- Trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.

- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **306—Syrupcreek-Lowerbluff complex, 2 to 15 percent slopes**

#### ***Composition***

*Syrupcreek and similar soils*—60 percent

*Lowerbluff and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Syrupcreek—gentle backslopes; Lowerbluff—summits

*Landform:* Plateaus

*Parent material:* Syrupcreek—volcanic ash and loess over colluvium and residuum derived from basalt or andesitic tuff breccia; Lowerbluff—mixed volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 4,500 to 5,500 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—25 to 35 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### ***Typical Profile of Syrupcreek***

1 inch to 0—partially decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 22 inches—dark brown very cobbly loam

22 to 28 inches—dark brown very stony clay loam

28 inches—basalt

#### ***Properties and Qualities of Syrupcreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

#### ***Typical Profile of Lowerbluff***

1 inch to 0—partially decomposed needles and twigs

0 to 6 inches—dark brown silt loam

6 to 15 inches—dark yellowish brown gravelly fine sandy loam

15 inches—basalt

#### ***Properties and Qualities of Lowerbluff***

*Depth to bedrock:* 10 to 20 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Fivebit soils on shoulders
- Limberjim soils on gentle rises of summits
- Downeygulch soils on summits

### ***Major Use***

Syrupcreek and Lowerbluff—timber production

### ***Major Management Limitations***

Syrupcreek and Lowerbluff—soil compaction, windthrow, plant competition, puddling, dustiness  
 Lowerbluff—seedling mortality, fire damage

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Because of the depth to bedrock, trees may be blown down when the soils are wet and winds are strong.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because the Lowerbluff soil is droughty, mortality of tree seedlings can be expected.
- Prescribed burning or natural fires of moderate intensity on the Lowerbluff soil may result in the loss of soil, loss of nutrients, and water repellency.

## ***307—Syrupcreek-Tamara complex, 15 to 30 percent north slopes***

### ***Composition***

*Syrupcreek and similar soils*—55 percent  
*Tamara and similar soils*—30 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Syrupcreek—north-facing shoulders and convex backslopes;  
 Tamara—north-facing footslopes and concave backslopes

*Landform:* Plateaus

*Parent material:* Syrupcreek—volcanic ash and loess over colluvium and residuum derived from basalt or andesitic tuff breccia; Tamara—volcanic ash over a mixture of loess, colluvium, and residuum derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Syrupcreek***

1 inch to 0—partially decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 22 inches—dark brown very cobbly loam

22 to 28 inches—dark brown very stony clay loam

28 inches—basalt

### ***Properties and Qualities of Syrupcreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Tamara***

1 inch to 0—partially decomposed leaves, needles, and twigs

0 to 4 inches—dark brown silt loam

4 to 15 inches—dark yellowish brown silt loam

15 to 30 inches—brown silt loam

30 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tamara***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 35 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 13 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Limberjim soils on middle backslopes
- Harl soils on footslopes

### ***Major Use***

Syrupcreek and Tamara—timber production

### ***Major Management Limitations***

Syrupcreek and Tamara—sheet and rill erosion, cut and fill erosion, soil compaction, plant competition, puddling, dustiness

Syrupcreek—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.

- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Trees may be blown down when the Syrupcreek soil is wet and winds are strong.

### **308—Syrupcreek-Tamara complex, 30 to 60 percent north slopes**

#### **Composition**

*Syrupcreek and similar soils*—65 percent

*Tamara and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Syrupcreek—north-facing convex backslopes; Tamara—north-facing concave backslopes

*Landform:* Canyons

*Parent material:* Syrupcreek—volcanic ash and loess over colluvium and residuum derived from basalt or andesitic tuff breccia; Tamara—volcanic ash over a mixture of loess, colluvium, and residuum derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

#### **Typical Profile of Syrupcreek**

1 inch to 0—partially decomposed moss and twigs

0 to 14 inches—dark yellowish brown silt loam

14 to 22 inches—dark brown very cobbly loam

22 to 28 inches—dark brown very stony clay loam

28 inches—basalt

#### **Properties and Qualities of Syrupcreek**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

#### **Typical Profile of Tamara**

1 inch to 0—partially decomposed leaves, needles, and twigs

0 to 4 inches—dark brown silt loam

4 to 15 inches—dark yellowish brown silt loam

15 to 30 inches—brown silt loam

30 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tamara***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 35 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 13 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Limberjim soils on middle backslopes
- Harl soils on concave backslopes

### ***Major Use***

Syrupcreek and Tamara—timber production

### ***Major Management Limitations***

Syrupcreek and Tamara—sheet and rill erosion, cut and fill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Syrupcreek—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Trees may be blown down when the Syrupcreek soil is wet and winds are strong.

## ***309—Tamara-Sherod complex, 0 to 15 percent slopes***

### ***Composition***

*Tamara and similar soils*—65 percent

*Sherod and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Tamara—gentle rises of summits; Sherod—narrow drainageways of summits

*Landform:* Plateaus

*Slope:* Tamara—0 to 15 percent; Sherod—0 to 3 percent

*Parent material:* Tamara—volcanic ash over a mixture of loess, colluvium, and



residuum derived from basalt; Sherod—mixed loess with minor amounts of volcanic ash over clayey residuum derived from basalt

*Elevation:* 4,100 to 4,400 feet

*Native plants:* Tamara—grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf; Sherod—California danthonia, rush, sedge, bluegrass, timber danthonia, spikerush

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Tamara***

1 inch to 0—partially decomposed leaves, needles, and twigs

0 to 4 inches—dark brown silt loam

4 to 15 inches—dark yellowish brown silt loam

15 to 30 inches—brown silt loam

30 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tamara***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 35 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Sherod***

0 to 5 inches—very dark grayish brown silt loam

5 to 8 inches—dark grayish brown silty clay loam

8 to 17 inches—brown very cobbly silty clay loam

17 to 19 inches—brownish yellow very cobbly clay

19 inches—basalt

### ***Properties and Qualities of Sherod***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 10 to 18 inches

*Drainage class:* Somewhat poorly drained

*Depth to water table (perched):* 1.0 to 1.5 feet in March through June

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Limberjim and Syrupcreek soils on gentle rises of summits
- Howmeadows soils in depressions or drainageways of summits

### ***Major Uses***

Tamara—timber production

Sherod—livestock grazing

### ***Major Management Limitations***

Tamara and Sherod—water erosion

Tamara—soil compaction, plant competition, puddling, dustiness

Sherod—permeability, depth to clayey layers, depth to bedrock, shrink-swell potential, available water capacity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The upper layer is saturated following snowmelt.
- The clayey layers in the soil restrict the rooting depth.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Shrinking and swelling may damage plant roots and limit the choice of species for range seedings.
- The clayey layers expand when wet and contract when dry, which can damage plant roots.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.
- The depth to bedrock limits the construction of water impoundments.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***310—Tamara-Syrupcreek complex, 0 to 15 percent slopes***

### ***Composition***

*Tamara and similar soils*—45 percent

*Syrupcreek and similar soils*—40 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Tamara—footslopes and concave backslopes; Syrupcreek—shoulders and convex backslopes

*Landform:* Plateaus

*Parent material:* Tamara—volcanic ash over a mixture of loess, colluvium, and residuum derived from basalt; Syrupcreek—volcanic ash and loess over colluvium and residuum derived from basalt or andesitic tuff breccia

*Elevation:* 3,400 to 5,800 feet

*Native plants:* Grand fir, Douglas fir, Engelmann spruce, western larch, longtube twinflower, big huckleberry, prince's pine, sedge, western rattlesnake plantain, sidebells shinleaf

*Climatic factors:*

Mean annual precipitation—20 to 40 inches

Mean annual air temperature—41 to 44 degrees F

Frost-free period—70 to 100 days

*Time of year more than 2 feet of snow on ground:* January through March

### ***Typical Profile of Tamara***

1 inch to 0—partially decomposed leaves, needles, and twigs  
 0 to 4 inches—dark brown silt loam  
 4 to 15 inches—dark yellowish brown silt loam  
 15 to 30 inches—brown silt loam  
 30 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tamara***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 35 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 13 inches

*Hazard of erosion:* Slight or moderate

### ***Typical Profile of Syrupcreek***

1 inch to 0—partially decomposed moss and twigs  
 0 to 14 inches—dark yellowish brown silt loam  
 14 to 22 inches—dark brown very cobbly loam  
 22 to 28 inches—dark brown very stony clay loam  
 28 inches—basalt

### ***Properties and Qualities of Syrupcreek***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 7 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Limberjim soils on middle backslopes
- Harl soils on footslopes

### ***Major Use***

Tamara and Syrupcreek—timber production

### ***Major Management Limitations***

Tamara and Syrupcreek—soil compaction, plant competition, puddling, dustiness

Syrupcreek—windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Trees may be blown down when the Syrupcreek soil is wet and winds are strong.

### **311—Tamarackcanyon-Linecreek-Harlow complex, 60 to 90 percent south slopes**

#### **Composition**

*Tamarackcanyon and similar soils*—40 percent

*Linecreek and similar soils*—25 percent

*Harlow and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Tamarackcanyon—south-facing convex backslopes; Linecreek—south-facing concave backslopes; Harlow—south-facing backslopes

*Landform:* Canyons

*Parent material:* Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt; Linecreek—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part; Harlow—loess and colluvium derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Tamarackcanyon and Linecreek—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile of Tamarackcanyon**

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

#### **Properties and Qualities of Tamarackcanyon**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

#### **Typical Profile of Linecreek**

0 to 9 inches—very dark grayish brown extremely cobbly loam

9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam

22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam

35 to 50 inches—yellowish brown extremely cobbly fine sandy loam

50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 11 inches

*Hazard of erosion:* Very severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo soils on concave lower backslopes
- Anatone soils on backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes
- Klicker soils on convex backslopes

### ***Major Uses***

Tamarackcanyon and Linecreek—timber production

Harlow—livestock grazing

### ***Major Management Limitations***

Tamarackcanyon, Linecreek, and Harlow—slope, water erosion

Tamarackcanyon and Linecreek—equipment operability, soil displacement, cut and fill erosion, plant competition, fire damage, dustiness

Tamarackcanyon and Harlow—permeability, shrink-swell potential, depth to clayey layers, available water capacity, depth to bedrock

Tamarackcanyon—soil compaction, puddling, windthrow

Linecreek—seedling mortality

Harlow—stones on soil surface

### ***General Management Considerations***

#### ***Livestock grazing***

- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.

- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the Tamarackcanyon soil, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on the Tamarackcanyon soil may be blown down when the soil is wet and winds are strong.
- Because the Linecreek soil is droughty, mortality of tree seedlings can be expected.
- Unsurfaced roads on the Tamarackcanyon soil on hillsides are sticky when wet because of the clay in the lower layers.
- Unsurfaced roads on the Linecreek soil on hillsides are firm when wet.
- Cobbles on the Linecreek soil make tree planting difficult.

### **312—Tamarackcanyon-Lowerbluff complex, 2 to 15 percent slopes**

#### **Composition**

*Tamarackcanyon and similar soils*—65 percent

*Lowerbluff and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Tamarackcanyon—gentle rises of summits; Lowerbluff—concave areas of summits

*Landform:* Plateaus, structural benches

*Parent material:* Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt; Lowerbluff—mixed volcanic ash, loess, and colluvium derived from basalt

*Elevation:* 3,400 to 5,700 feet

*Native plants:* Tamarackcanyon—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Lowerbluff—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss  
 0 to 4 inches—very dark grayish brown loam  
 4 to 9 inches—brown clay loam  
 9 to 13 inches—brown gravelly clay loam  
 13 to 25 inches—brown very cobbly clay  
 25 to 38 inches—reddish brown extremely stony clay  
 38 inches—basalt

### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches  
*Depth to clayey layers:* 13 to 23 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High

### ***Typical Profile of Lowerbluff***

1 inch to 0—slightly decomposed needles and twigs  
 0 to 6 inches—dark brown silt loam  
 6 to 15 inches—dark yellowish brown gravelly fine sandy loam  
 15 inches—basalt

### ***Properties and Qualities of Lowerbluff***

*Depth to bedrock:* 10 to 20 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Olot soils on margins of summits

### ***Major Use***

Tamarackcanyon and Lowerbluff—timber production

### ***Major Management Limitations***

Tamarackcanyon and Lowerbluff—soil compaction, available water capacity, windthrow, plant competition, dustiness  
 Tamarackcanyon—permeability, shrink-swell potential, depth to clayey layers  
 Lowerbluff—depth to bedrock, fire damage

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Trees may be blown down when the soils are wet and winds are strong because of the depth to bedrock.



- Because the Lowerbluff soil is droughty, mortality of tree seedlings can be expected.
- Prescribed burning or natural fires of moderate intensity on the Lowerbluff soil may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***313—Tamarackcanyon-Olot-Harlow complex, 15 to 30 percent south slopes***

#### ***Composition***

*Tamarackcanyon and similar soils—40 percent*

*Olot and similar soils—25 percent*

*Harlow and similar soils—20 percent*

*Contrasting inclusions—15 percent*

#### ***Setting***

*Landscape position:* Tamarackcanyon—south-facing shoulders and convex backslopes; Olot—south-facing footslopes and concave backslopes; Harlow—south-facing backslopes

*Landform:* Canyons

*Parent material:* Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt; Olot—volcanic ash over colluvium and residuum derived from basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Tamarackcanyon—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Olot—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

#### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs  
 0 to 2 inches—very dark grayish brown silt loam  
 2 to 6 inches—dark brown silt loam  
 6 to 19 inches—brown silt loam  
 19 to 23 inches—dark brown very cobbly silt loam  
 23 to 36 inches—dark brown extremely cobbly silty clay loam  
 36 inches—basalt

### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
 4 to 8 inches—very dark grayish brown very cobbly clay loam  
 8 to 16 inches—dark brown extremely cobbly clay  
 16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo soils on footslopes and concave backslopes
- Anatone soils on backslopes
- Klicker soils on shoulders and convex backslopes

### ***Major Uses***

Tamarackcanyon and Olot—timber production  
 Harlow—livestock grazing

### ***Major Management Limitations***

Tamarackcanyon, Olot, and Harlow—water erosion  
 Tamarackcanyon and Olot—soil compaction, dustiness, equipment operability, windthrow, plant competition  
 Tamarackcanyon and Harlow—permeability, shrink-swell potential, depth to clayey layers, available water capacity, depth to bedrock  
 Tamarackcanyon—fire damage  
 Olot—seedling mortality  
 Harlow—stones on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high where there is little plant cover protecting the surface layer.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Trees may be blown down when the soils are wet and winds are strong because of the depth to bedrock.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity on the Tamarackcanyon soil may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on the Tamarackcanyon soil on hillsides are sticky when wet because of the clay in the lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails on the Olot soil on hillsides are soft when wet.
- Because the Olot soil is droughty, mortality of tree seedlings can be expected.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***314—Tamarackcanyon-Olot-Harlow complex, 30 to 60 percent south slopes***

#### ***Composition***

*Tamarackcanyon and similar soils—40 percent*

*Olot and similar soils—25 percent*

*Harlow and similar soils—20 percent*

*Contrasting inclusions—15 percent*

#### ***Setting***

*Landscape position:* Tamarackcanyon—south-facing convex backslopes; Olot—south-facing concave backslopes; Harlow—south-facing backslopes

*Landform:* Canyons

*Parent material:* Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt; Olot—volcanic ash over colluvium and residuum derived from basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 4,000 to 6,200 feet

*Native plants:* Tamarackcanyon—ponderosa pine, grand fir, Douglas fir; Olot—ponderosa pine, grand fir; Harlow—bluebunch wheatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—dark brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo soils on concave backslopes
- Anatone soils on backslopes
- Klicker soils on convex backslopes

### ***Major Uses***

Tamarackcanyon and Olot—timber production

Harlow—livestock grazing

### ***Major Management Limitations***

Tamarackcanyon, Olot, and Harlow—slope, water erosion

Tamarackcanyon and Olot—equipment operability, soil compaction, dustiness, soil displacement, windthrow, plant competition

Tamarackcanyon and Harlow—permeability, shrink-swell potential, depth to clayey layers, available water capacity, depth to bedrock

Tamarackcanyon—puddling, fire damage

Olot—seedling mortality

Harlow—stones on soil surface

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers in the soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Trees may be blown down when the soils are wet and winds are strong because of the depth to bedrock.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity on the Tamarackcanyon soil may result in loss of soil, loss of nutrients, and water repellency.
- Because the Olot soil is droughty, mortality of tree seedlings can be expected.

- Unsurfaced roads on the Tamarackcanyon soil on hillsides are sticky when wet because of the clay in the lower layers.
- Unsurfaced roads on the Olot soil on hillsides are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **315—Tannahill-Schrier-Rock outcrop complex, 60 to 90 percent slopes**

#### ***Composition***

*Tannahill and similar soils*—35 percent

*Schrier and similar soils*—35 percent

*Rock outcrop*—15 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Tannahill—south-facing backslopes; Schrier—north-facing backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing and south-facing backslopes

*Landform:* Canyons

*Parent material:* Tannahill—colluvium and residuum derived from basalt; Schrier—loess and colluvium derived from basalt

*Elevation:* 1,700 to 2,800 feet

*Native plants:* Tannahill—bluebunch wheatgrass, sand dropseed; Schrier—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—12 to 15 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—120 to 160 days

#### ***Typical Profile of Tannahill***

0 to 10 inches—very dark grayish brown very cobbly loam

10 to 16 inches—dark brown very cobbly loam

16 to 29 inches—dark yellowish brown extremely cobbly clay loam

29 to 41 inches—brown extremely stony loam

41 to 48 inches—light yellowish brown extremely stony loam

48 inches—basalt

#### ***Properties and Qualities of Tannahill***

*Depth to bedrock:* 40 to 60 inches

*Depth to calcium carbonate layer:* 13 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Very severe

*Corrosivity to uncoated steel:* High

#### ***Typical Profile of Schrier***

0 to 9 inches—very dark brown silt loam

9 to 23 inches—very dark grayish brown silt loam

23 to 30 inches—brown silty clay loam

30 to 34 inches—dark grayish brown silty clay loam

34 to 43 inches—grayish brown clay loam

43 to 60 inches—brown clay loam

### ***Properties and Qualities of Schrier soil***

*Depth to bedrock:* More than 60 inches

*Depth to calcium carbonate layer:* 18 to 43 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 4 inches

*Hazard of erosion:* Very severe

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Dixiejett soils on concave backslopes
- Schuelke soils on middle backslopes
- Lickskillet and Rockly soils on convex backslopes

### ***Major Use***

Tannahill and Schrier—livestock grazing

### ***Major Management Limitations***

Tannahill, Schrier, and Rock outcrop—slope

Tannahill and Schrier—water erosion, corrosivity, available water capacity

### ***General Management Considerations***

#### ***Livestock grazing***

- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Site disturbance, such as construction of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- The high corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The low annual precipitation limits production and seasonal availability of forage.

## ***316—Tannahill-Schuelke-Lickskillet complex, 30 to 60 percent south slopes***

### ***Composition***

*Tannahill and similar soils*—35 percent

*Schuelke and similar soils*—30 percent

*Lickskillet and similar soils*—25 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Tannahill—south-facing concave backslopes; Schuelke—south-facing middle backslopes; Lickskillet—south-facing convex backslopes

*Landform:* Canyons

*Parent material:* Tannahill—colluvium and residuum derived from basalt; Schuelke—loess and colluvium derived from basalt; Lickskillet—colluvium and residuum derived from basalt



*Elevation:* 1,800 to 2,800 feet

*Native plants:* Bluebunch wheatgrass, sand dropseed

*Climatic factors:*

Mean annual precipitation—12 to 15 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—120 to 160 days

### ***Typical Profile of Tannahill***

0 to 10 inches—very dark grayish brown very cobbly loam

10 to 16 inches—dark brown very cobbly loam

16 to 29 inches—dark yellowish brown extremely cobbly clay loam

29 to 41 inches—brown extremely stony loam

41 to 48 inches—light yellowish brown extremely stony loam

48 inches—basalt

### ***Properties and Qualities of Tannahill***

*Depth to bedrock:* 40 to 60 inches

*Depth to calcium carbonate layer:* 13 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Corrosivity to uncoated steel:* High

### ***Typical Profile of Schuelke***

0 to 5 inches—very dark brown silt loam

5 to 12 inches—very dark grayish brown very cobbly silty clay loam

12 to 22 inches—pale brown very cobbly loam

22 to 33 inches—brown very cobbly loam

33 inches—basalt

### ***Properties and Qualities of Schuelke***

*Depth to bedrock:* 20 to 40 inches

*Depth to calcium carbonate layer:* 12 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Corrosivity to uncoated steel:* High

### ***Typical Profile of Lickskillet***

0 to 7 inches—very dark grayish brown very cobbly loam

7 to 19 inches—brown extremely cobbly loam

19 inches—Imnaha basalt

### ***Properties and Qualities of Lickskillet***

*Depth to bedrock:* 12 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Dixiejett soils on concave backslopes

- Imnaha soils on middle backslopes
- Rockly soils on convex backslopes

### ***Major Use***

Tannahill, Schuelke, and Lickskillet—livestock grazing

### ***Major Management Limitations***

Tannahill, Schuelke, and Lickskillet—water erosion, slope, available water capacity

Tannahill and Schuelke—corrosivity

Lickskillet—depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Livestock tend to graze the easily accessible forage on gentle slopes before they graze the forage on steeper slopes.
- Slope restricts the operation of ground seeding equipment.
- Droughtiness may limit the success of seedings and the choice of species for seedings.
- The high corrosivity of the Tannahill and Schuelke soils may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The bedrock in the Lickskillet soil restricts the rooting depth.
- The shallow depth of the Lickskillet soil limits the use of conventional fencing and makes special design of fences necessary.
- The low annual precipitation limits production and seasonal availability of forage.

## ***317—Thiessen very cobbly silt loam, 15 to 30 percent north slopes***

### ***Composition***

*Thiessen and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Canyons

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 1,600 to 2,800 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—47 to 50 degrees F

Frost-free period—100 to 145 days

### ***Typical Profile***

0 to 3 inches—very dark brown very cobbly silt loam

3 to 6 inches—dark brown very gravelly clay loam

6 to 14 inches—very dark brown very gravelly clay loam

14 to 23 inches—very dark brown very cobbly clay

23 to 34 inches—dark brown very cobbly clay

34 inches—basalt

### ***Soil Properties and Qualities***

*Depth to bedrock:* 20 to 40 inches

*Depth to clayey layers:* 6 to 10 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 3 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Laufer soils on shoulders
- Copperfield soils on footslopes

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Available water capacity, water erosion, cobbles on soil surface, depth to clayey layers

### ***General Management Considerations***

#### **Livestock grazing**

- The clayey layers restrict the rooting depth.
- The risk of soil loss from water erosion is high in areas where there is little plant cover or litter protecting the surface layer.
- Droughtiness limits the success of seedings and the choice of species for range seedings.
- Slope restricts the operation of ground seeding equipment.

## ***318—Threebuck-Harlow complex, dry, 2 to 15 percent slopes***

### ***Composition***

*Threebuck and similar soils*—70 percent

*Harlow and similar soils*—15 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Threebuck—gentle, north-facing concave summits; Harlow—gentle, north-facing convex summits

*Landform:* Plateaus

*Parent material:* Threebuck—volcanic ash over clayey colluvium derived from basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 4,600 to 4,900 feet

*Native plants:* Threebuck—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Harlow—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—15 to 20 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Threebuck***

1 inch to 0—slightly decomposed twigs, needles, and moss  
0 to 4 inches—very dark grayish brown loam  
4 to 14 inches—brown cobbly loam  
14 to 25 inches—brown very stony clay  
25 to 36 inches—brown very gravelly clay  
36 to 47 inches—dark brown gravelly clay  
47 inches—basalt

### ***Properties and Qualities of Threebuck***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches  
*Depth to claypan:* 14 to 22 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate in the upper part and slow in the lower part  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
4 to 8 inches—very dark grayish brown very cobbly clay loam  
8 to 16 inches—dark brown extremely cobbly clay  
16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tamarackcanyon soils in concave areas between rises and depressions of summits
- Rock outcrop on shoulders

### ***Major Uses***

Threebuck—timber production  
Harlow—livestock grazing

### ***Major Management Limitations***

Threebuck and Harlow—permeability, shrink-swell potential  
Threebuck—soil compaction, plant competition, puddling, dustiness, depth to claypan  
Harlow—available water capacity, depth to bedrock, depth to clayey lower layers

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- The clayey layers in the soil restrict the rooting depth, and they expand when wet

- and contract when dry, which can damage plant roots.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- The very stony upper layer restricts the operation of ground seeding equipment.
- Droughtiness of the soil may limit the success of seedings and the choice of species for seedings.
- Seeding areas that are in poor condition is difficult because of the soil depth and stoniness.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soil, carefully choose the type of equipment and the timing of operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **319—Threebuck-Linecreek-Harlow complex, 60 to 90 percent north slopes**

#### **Composition**

*Threebuck soils and similar inclusions—35 percent*

*Linecreek soils and similar inclusions—30 percent*

*Harlow soils and similar inclusions—20 percent*

*Contrasting inclusions—15 percent*

#### **Setting**

*Landscape position:* Threebuck—north-facing concave backslopes; Linecreek—north-facing drainageways of backslopes; Harlow—north-facing backslopes

*Landform:* Hills

*Parent material:* Threebuck—volcanic ash over clayey colluvium derived from basalt; Linecreek—colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part; Harlow—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Threebuck and Linecreek—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile of Threebuck**

1 inch to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 14 inches—brown cobbly loam

14 to 25 inches—brown very stony clay

25 to 36 inches—brown very gravelly clay

36 to 47 inches—dark brown gravelly clay  
47 inches—basalt

### ***Properties and Qualities of Threebuck***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches  
*Depth to claypan:* 14 to 22 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate in the upper part and slow in the lower part  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam  
9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam  
22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam  
35 to 50 inches—yellowish brown extremely cobbly fine sandy loam  
50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid  
*Available water capacity:* About 11 inches  
*Hazard of erosion:* Very severe

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
4 to 8 inches—very dark grayish brown very cobbly clay loam  
8 to 16 inches—dark brown extremely cobbly clay  
16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Very severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo soils on concave lower backslopes
- Tamarackcanyon soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes

### ***Major Uses***

Threebuck and Linecreek—timber production  
Harlow—livestock grazing

### ***Major Management Limitations***

Threebuck, Linecreek, and Harlow—slope, water erosion

Threebuck and Linecreek—equipment operability, cut and fill erosion, soil displacement, plant competition, fire damage, dustiness

Threebuck and Harlow—permeability, shrink-swell potential

Threebuck—soil compaction, depth to claypan

Harlow—depth to bedrock, available water capacity, depth to clayey lower layers

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Site disturbance, such as constructions of roads, heavy grazing by livestock or wildlife, and fire, may result in slope stability problems such as soil erosion, sloughing, and raveling.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the Threebuck soil, carefully choose the type of equipment and the timing of operations.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on the Linecreek soil on hillsides are firm when wet because of the content of rock fragments.
- Unsurfaced roads on the Threebuck soil on hillsides are sticky when wet because of the claypan.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### ***320—Threebuck-Tamarackcanyon complex, 15 to 30 percent north slopes***

#### ***Composition***

*Threebuck and similar soils—50 percent*

*Tamarackcanyon and similar soils—35 percent*

*Contrasting inclusions—15 percent*



### ***Setting***

*Landscape position:* Threebuck—north-facing footslopes and concave backslopes;  
Tamarackcanyon—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Threebuck—volcanic ash over clayey colluvium derived from basalt;  
Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Threebuck***

1 inch to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 14 inches—brown cobbly loam

14 to 25 inches—brown very stony clay

25 to 36 inches—brown very gravelly clay

36 to 47 inches—dark brown gravelly clay

47 inches—basalt

### ***Properties and Qualities of Threebuck***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches

*Depth to claypan:* 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and slow in the lower part

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo soils on footslopes
- Harlow soils on shoulders

### ***Major Use***

Threebuck and Tamarackcanyon—timber production

### ***Major Management Limitations***

Threebuck and Tamarackcanyon—permeability, shrink-swell potential, water erosion, sheet and rill erosion, soil compaction, equipment operability, puddling, dustiness, plant competition

Threebuck—depth to claypan

Tamarackcanyon—available water capacity, windthrow, depth to bedrock, fire damage, depth to clayey lower layers

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed on the Tamarackcanyon soil to control soil loss following activities that expose the soil.
- Because of the depth to bedrock, trees on the Tamarackcanyon soil may be blown down when the soil is wet and winds are strong.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are sticky when wet because of the clay in the lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***321—Threebuck-Tamarackcanyon complex, 30 to 60 percent north slopes***

### ***Composition***

Threebuck and similar soils—50 percent

Tamarackcanyon and similar soils—35 percent

Contrasting inclusions—15 percent

### ***Setting***

*Landscape position:* Threebuck—north-facing concave backslopes;  
Tamarackcanyon—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Threebuck—volcanic ash over clayey colluvium derived from basalt;  
Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Threebuck***

1 inch to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 14 inches—brown cobbly loam

14 to 25 inches—brown very stony clay

25 to 36 inches—brown very gravelly clay

36 to 47 inches—dark brown gravelly clay

47 inches—basalt

### ***Properties and Qualities of Threebuck***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches

*Depth to claypan:* 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and slow in the lower part

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 4 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo soils on lower backslopes
- Harlow soils on convex backslopes

### ***Major Use***

Threebuck and Tamarackcanyon—timber production

### ***Major Management Limitations***

Threebuck and Tamarackcanyon—slope, soil compaction, equipment operability, permeability, shrink-swell potential, water erosion, sheet and rill erosion, soil displacement, puddling, dustiness, plant competition, fire damage

Threebuck—depth to claypan

Tamarackcanyon—available water capacity, depth to bedrock, windthrow, depth to clayey lower layers

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Because of the depth to bedrock, trees on the Tamarackcanyon soil may be blown down when the soil is wet and winds are strong.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are sticky when wet because of the clay in the lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***322—Threebuck-Tamarackcanyon-Harlow complex, 30 to 60 percent north slopes***

### ***Composition***

*Threebuck and similar soils*—35 percent

*Tamarackcanyon and similar soils*—30 percent

*Harlow and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Threebuck—north-facing concave backslopes;  
Tamarackcanyon—north-facing convex backslopes; Harlow—north-facing dissected convex backslopes

*Landform:* Canyons

*Parent material:* Threebuck—volcanic ash over clayey colluvium derived from basalt;  
Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived from basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Threebuck and Tamarackcanyon—Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica; Harlow—Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Threebuck***

1 inch to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 14 inches—brown cobbly loam  
 14 to 25 inches—brown very stony clay  
 25 to 36 inches—brown very gravelly clay  
 36 to 47 inches—dark brown gravelly clay  
 47 inches—basalt

### ***Properties and Qualities of Threebuck***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches  
*Depth to claypan:* 14 to 22 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate in the upper part and slow in the lower part  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss  
 0 to 4 inches—very dark grayish brown loam  
 4 to 9 inches—brown clay loam  
 9 to 13 inches—brown gravelly clay loam  
 13 to 25 inches—brown very cobbly clay  
 25 to 38 inches—reddish brown extremely stony clay  
 38 inches—basalt

### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches  
*Depth to clayey layers:* 13 to 23 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 4 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam  
 4 to 8 inches—very dark grayish brown very cobbly clay loam  
 8 to 16 inches—dark brown extremely cobbly clay  
 16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches  
*Depth to clayey layers:* 8 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1.5 inches  
*Hazard of erosion:* Severe  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tolo soils on concave lower backslopes
- Anatone soils on backslopes
- Linecreek soils in V-shaped drainageways of backslopes

### ***Major Uses***

Threebuck and Tamarackcanyon—timber production

Harlow—livestock grazing

### ***Major Management Limitations***

Threebuck, Tamarackcanyon, and Harlow—slope, permeability, shrink-swell potential, water erosion

Threebuck and Tamarackcanyon—soil compaction, equipment operability, soil displacement, puddling, dustiness, plant competition, fire damage, depth to claypan or clayey layers

Tamarackcanyon and Harlow—available water capacity, depth to bedrock

Tamarackcanyon—windthrow

### ***General Management Considerations***

#### **Livestock grazing**

- Erosion of the easily disturbed surface layer of the soil causes a change in the range site and a loss in the potential for forage production.
- The risk of soil loss from water erosion is high where there is little plant cover protecting the surface layer.
- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- The clayey layers restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- Cool soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and to the plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- To minimize soil damage from compaction, carefully choose equipment type and timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of the clay in the lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on Tamarackcanyon soil may be blown down when the soil is wet and winds are strong.

## ***323—Threebuck-Tamarackcanyon-Linecreek complex, 60 to 90 percent north slopes***

### ***Composition***

Threebuck and similar soils—35 percent

Tamarackcanyon and similar soils—30 percent

*Linecreek and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Threebuck—north-facing concave backslopes;  
Tamarackcanyon—north-facing convex backslopes; Linecreek—north-facing  
drainageways on backslopes

*Landform:* Canyons

*Parent material:* Threebuck—volcanic ash over clayey colluvium derived from basalt;  
Tamarackcanyon—mixed volcanic ash and loess over clayey colluvium derived  
from basalt; Linecreek—colluvium derived from basalt with a mixture of volcanic  
ash and loess in the upper part

*Elevation:* 2,800 to 5,400 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry,  
shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Threebuck***

1 inch to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 14 inches—brown cobbly loam

14 to 25 inches—brown very stony clay

25 to 36 inches—brown very gravelly clay

36 to 47 inches—dark brown gravelly clay

47 inches—basalt

### ***Properties and Qualities of Threebuck***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 14 to 22 inches

*Depth to claypan:* 14 to 22 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and slow in the lower part

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Tamarackcanyon***

2 inches to 0—slightly decomposed twigs, needles, and moss

0 to 4 inches—very dark grayish brown loam

4 to 9 inches—brown clay loam

9 to 13 inches—brown gravelly clay loam

13 to 25 inches—brown very cobbly clay

25 to 38 inches—reddish brown extremely stony clay

38 inches—basalt

### ***Properties and Qualities of Tamarackcanyon***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 7 to 14 inches

*Depth to clayey layers:* 13 to 23 inches

*Drainage class:* Well drained

*Permeability:* Slow



*Available water capacity:* About 4 inches

*Hazard of erosion:* Very severe

*Shrink-swell potential:* High

### ***Typical Profile of Linecreek***

0 to 9 inches—very dark grayish brown extremely cobbly loam

9 to 22 inches—very dark grayish brown extremely gravelly fine sandy loam

22 to 35 inches—dark grayish brown extremely gravelly fine sandy loam

35 to 50 inches—yellowish brown extremely cobbly fine sandy loam

50 to 61 inches—brown extremely gravelly loam

### ***Properties and Qualities of Linecreek***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid

*Available water capacity:* About 11 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Tolo soils on concave lower backslopes
- Harlow soils on convex backslopes
- Rock outcrop consisting of horizontal layers of exposed bedrock on backslopes

### ***Major Use***

Threebuck, Tamarackcanyon, and Linecreek—timber production

### ***Major Management Limitations***

Threebuck, Tamarackcanyon, and Linecreek—slope, equipment operability, water erosion, soil displacement, dustiness, cut and fill erosion, plant competition, fire damage

Threebuck and Tamarackcanyon—soil compaction, permeability, shrink-swell potential, puddling

Threebuck—depth to claypan

Tamarackcanyon—available water capacity, depth to bedrock, windthrow, depth to clayey lower layers

### ***General Management Considerations***

#### **Timber production**

- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the Threebuck and Tamarackcanyon soils, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Because of the depth to bedrock, trees on the Tamarackcanyon soil may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Prescribed burning or natural fires of moderate intensity may result in the loss of soil, loss of nutrients, and water repellency.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.

- Unsurfaced roads on the Linecreek soil on hillsides are firm when wet.
- Unsurfaced roads on the Threebuck and Tamarackcanyon soils on hillsides are sticky when wet because of the clay in the lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **324—Tippett-Harlow complex, 0 to 3 percent slopes**

#### ***Composition***

*Tippett and similar soils*—70 percent

*Harlow and similar soils*—20 percent

*Contrasting inclusions*—10 percent

#### ***Setting***

*Landscape position:* Tippett—summits; Harlow—shoulders or adjacent to small areas of Rock outcrop on summits

*Landform:* Plateaus, structural benches

*Parent material:* Tippett—loess over clayey alluvium or lacustrine deposits; Harlow—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Tippett—tufted hairgrass, sedge, rush, spikerush; Harlow—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Tippett***

0 to 10 inches—black silty clay loam

10 to 14 inches—very dark brown silty clay loam

14 to 16 inches—dark grayish brown loam

16 to 30 inches—brown clay

30 to 51 inches—brown clay

51 inches—basalt

#### ***Properties and Qualities of Tippett***

*Depth to bedrock:* 40 to 60 inches

*Depth to claypan:* 15 to 25 inches

*Drainage class:* Well drained

*Permeability:* Very slow

*Available water capacity:* About 11 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Very high in the claypan

#### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

#### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 1 inch  
*Hazard of erosion:* Slight  
*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Snell soils on adjacent footslopes
- Hurwal soils on adjacent north-facing footslopes
- Rock outcrop on shoulders
- Wallowa soils on mounds and Bocker soils in intermounds of adjacent structural benches

### ***Major Use***

Tippett and Harlow—livestock grazing, including some abandoned cropland now used for grazing

### ***Major Management Limitations***

Tippett and Harlow—permeability, shrink-swell potential, depth to claypan or clayey layers  
 Harlow—depth to bedrock, available water capacity, very stony soil surface

### ***General Management Considerations***

#### ***Livestock grazing***

- The upper layer of the soils is saturated following snowmelt.
- The clay restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- Droughtiness of the Harlow soil may limit the success of seedings and the choice of species for seedings.
- The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
- Livestock tend to graze in the less stony areas.
- Seeding areas that are in poor condition is difficult on the Harlow soil because of the soil depth or stoniness, or both.

## ***325—Tippett-Zumwalt complex, 0 to 3 percent slopes***

### ***Composition***

*Tippett and similar soils*—70 percent  
*Zumwalt and similar soils*—20 percent  
*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Tippett—broad depressions or drainageways of summits;  
 Zumwalt—along the edges of depressions or drainageways of summits (fig. 18)

*Landform:* Plateaus

*Parent material:* Tippet—loess over clayey alluvium or lacustrine deposits;  
Zumwalt—mixed volcanic ash and loess over residuum and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Tippet—tufted hairgrass, sedge, rush, spikerush; Zumwalt—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Tippet***

0 to 10 inches—black silty clay loam  
10 to 14 inches—very dark brown silty clay loam  
14 to 16 inches—dark grayish brown loam  
16 to 30 inches—brown clay  
30 to 51 inches—brown clay  
51 to 60 inches—strong brown gravelly clay

#### ***Properties and Qualities of Tippet***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 15 to 25 inches

*Drainage class:* Well drained

*Permeability:* Very slow

*Available water capacity:* About 11 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Very high in the claypan

#### ***Typical Profile of Zumwalt***

0 to 7 inches—black silt loam  
7 to 9 inches—very dark grayish brown silt loam  
9 to 21 inches—dark brown silty clay



**Figure 18.**—In center, area of Tippet-Zumwalt complex, 0 to 3 percent slopes, in broad depressions of summits of plateaus. This area is in Zumwalt Prairie.

21 to 37 inches—dark brown silty clay  
 37 inches—basalt

### ***Properties and Qualities of Zumwalt***

*Depth to bedrock:* 20 to 40 inches

*Depth to claypan:* 8 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Very high in the claypan

### ***Contrasting Inclusions***

- Harlow and Snell soils along adjacent south-facing footslopes
- Hurwal and Powwatka soils on adjacent north-facing footslopes

### ***Major Use***

Tippett and Zumwalt—livestock grazing, including some abandoned cropland now used for grazing

### ***Major Management Limitations***

Tippett and Zumwalt—permeability, shrink-swell potential, depth to claypan

### ***General Management Considerations***

#### **Livestock grazing**

- The claypan restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- The upper layer of the soils is saturated following snowmelt
- Surface and subsurface flows from adjacent uplands contribute to the available water.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## ***326—Tolo silt loam, 2 to 15 percent slopes***

### ***Composition***

*Tolo and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing concave footslopes and summits

*Landform:* Plateaus, structural benches, hills

*Parent material:* Volcanic ash over loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—mostly decomposed needles and twigs  
0 to 1 inch—dark brown silt loam  
1 to 20 inches—brown silt loam  
20 to 23 inches—dark grayish brown silt loam  
23 to 33 inches—brown silt loam  
33 to 60 inches—brown silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Slight or moderate

### ***Contrasting Inclusions***

- Olot soils on shoulders
- Akerite soils on footslopes adjacent to wet meadows
- Klicker soils on adjacent south-facing shoulders and fault structural benches

### ***Major Use***

Timber production

### ***Major Management Limitations***

Water erosion, dustiness, soil compaction, seedling mortality, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the limited precipitation, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***327—Tolo silt loam, 15 to 30 percent north slopes***

### ***Composition***

*Tolo and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* North-facing backslopes

*Landform:* Hills

*Parent material:* Volcanic ash over loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, mallow ninebark, common snowberry, shinyleaf spirea, baldhip rose, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

1 inch to 0—mostly decomposed needles and twigs

0 to 1 inch—dark brown silt loam

1 to 20 inches—brown silt loam

20 to 23 inches—dark grayish brown silt loam

23 to 33 inches—brown silt loam

33 to 60 inches—brown silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Olot soils on shoulders
- Getaway soils on shoulders
- Klicker soils on adjacent south-facing lower footslopes

### ***Major Use***

Timber production

### ***Major Management Limitations***

Water erosion, dustiness, soil compaction, cut and fill erosion, equipment operability, plant competition

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes.
- Special precautions may be needed to control soil loss following activities that expose the soil.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on hillsides are sticky when wet because of the slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***328—Tolo silt loam, fan, 2 to 15 percent slopes***

### ***Composition***

*Tolo, fan, and similar soils*—85 percent

*Contrasting inclusions*—15 percent



### ***Setting***

*Landscape position:* Toeslopes at the mouth of narrow canyons

*Landform:* Fans

*Parent material:* Volcanic ash over loess and colluvium derived from basalt

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, western larch

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 2 inches—dark brown silt loam

2 to 9 inches—dark yellowish brown silt loam

9 to 21 inches—yellowish brown silt loam

21 to 26 inches—dark brown silt loam

26 to 37 inches—dark yellowish brown silty clay loam

37 to 60 inches—dark yellowish brown cobbly silty clay loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Linecreek soils on footslopes at narrow canyon openings

### ***Major Uses***

Timber production, hay and pasture in cleared areas

### ***Major Management Limitations***

Hazard of compaction, dustiness, seedling mortality, plant competition

### ***General Management Considerations***

#### **Hay and pasture**

- Soil erosion caused by snowmelt and runoff in winter reduces productivity unless conservation practices are applied.
- Cool soil temperatures and a short growing season limit the period of plant growth.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because this soil is droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **329—Tolo-Getaway complex, 15 to 30 percent north slopes**

#### ***Composition***

*Tolo and similar soils*—50 percent

*Getaway and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Tolo—north-facing concave backslopes and footslopes;

Getaway—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Tolo—volcanic ash over loess and colluvium derived from basalt;

Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Tolo—Douglas fir, ponderosa pine, western larch, lodgepole pine, grand fir, pinegrass; Getaway—Douglas fir, ponderosa pine, western larch, ninebark

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Tolo***

1 inch to 0—mostly decomposed needles and twigs

0 to 1 inch—dark brown silt loam

1 to 20 inches—brown silt loam

20 to 23 inches—dark grayish brown silt loam

23 to 33 inches—brown silt loam

33 to 60 inches—brown silty clay loam

#### ***Properties and Qualities of Tolo***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Severe

#### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

#### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Anatone and Harlow soils on shoulders
- Olot soils on shoulders
- Klickson soils on footslopes

### ***Major Use***

Tolo and Getaway—timber production

### ***Major Management Limitations***

Tolo and Getaway—soil compaction, equipment operability, plant competition, slope, water erosion, dustiness

Tolo—cut and fill erosion, sheet and rill erosion

Getaway—cobble on soil surface, seedling mortality

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed on the Tolo soil to control soil loss following activities that expose the soil.
- Erosion control measures are needed on the Tolo soil to reduce soil loss from cut and fill slopes.
- Uncontrolled competing vegetation may retard reforestation.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Unsurfaced roads on hillsides are sticky when wet because of slightly clayey lower layers. Skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

## ***330—Tolo-Getaway complex, 30 to 60 percent north slopes***

### ***Composition***

*Tolo and similar soils*—50 percent

*Getaway and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Tolo—north-facing concave backslopes and V-shaped drainageways on backslopes; Getaway—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Tolo—volcanic ash over loess and colluvium derived from basalt; Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Tolo—Douglas fir, ponderosa pine, western larch, lodgepole pine, grand fir, pinegrass; Getaway—Douglas fir, ponderosa pine, western larch, ninebark

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Tolo***

1 inch to 0—mostly decomposed needles and twigs  
 0 to 1 inch—dark brown silt loam  
 1 to 20 inches—brown silt loam  
 20 to 23 inches—dark grayish brown silt loam  
 23 to 33 inches—brown silt loam  
 33 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tolo***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part  
*Available water capacity:* About 16 inches  
*Hazard of erosion:* Severe

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs  
 0 to 13 inches—very dark brown cobbly silt loam  
 13 to 48 inches—dark brown very cobbly silty clay loam  
 48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Anatone and Harlow soils on convex backslopes
- Linecreek soils on concave backslopes
- Olot soils on convex backslopes
- Klickson soils on concave backslopes

### ***Major Use***

Tolo and Getaway—timber production

### ***Major Management Limitations***

Tolo and Getaway—slope, water erosion, equipment operability, soil compaction, soil displacement, sheet and rill erosion, plant competition, dustiness  
 Tolo—cut and fill erosion  
 Getaway—cobbles on soil surface, fire damage, seedling mortality

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- Erosion control measures are needed on the Tolo soil to reduce soil loss from cut and fill slopes.

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Prescribed burning or natural fires of moderate intensity on the Getaway soil may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads on hillsides are sticky when wet because of slightly clayey lower layers.
- Unsurfaced roads are very dusty when dry because of the surface volcanic ash.

### ***331—Tolo-Getaway complex, dry, 15 to 30 percent north slopes***

#### ***Composition***

*Tolo and similar soils*—50 percent

*Getaway and similar soils*—35 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Tolo—north-facing concave backslopes and footslopes;

Getaway—north-facing shoulders and convex backslopes

*Landform:* Canyons

*Parent material:* Tolo—volcanic ash over loess and colluvium derived from basalt;

Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—15 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Tolo***

1 inch to 0—mostly decomposed needles and twigs

0 to 1 inch—dark brown silt loam

1 to 20 inches—brown silt loam

20 to 23 inches—dark grayish brown silt loam

23 to 33 inches—brown silt loam

33 to 60 inches—brown silty clay loam

#### ***Properties and Qualities of Tolo***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs  
 0 to 13 inches—very dark brown cobbly silt loam  
 13 to 48 inches—dark brown very cobbly silty clay loam  
 48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches  
*Drainage class:* Well drained  
*Permeability:* Moderately slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Anatone and Bocker soils on shoulders
- Klickson soils on lower convex backslopes
- Harlow and Snell soils on adjacent south-facing backslopes
- Wallowa and Bocker soils on mounds and in intermounds of adjacent higher plateaus

### ***Major Use***

Tolo and Getaway—timber production

### ***Major Management Limitations***

Tolo and Getaway—soil compaction, equipment operability, plant competition, dustiness  
 Tolo—water erosion, cut and fill erosion, sheet and rill erosion  
 Getaway—cobble on soil surface, seedling mortality

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Special precautions may be needed to control soil loss following activities that expose the Tolo soil.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes on the Tolo soil.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Unsurfaced roads are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads on hillsides are sticky when wet because of slightly clayey lower layers. Skid trails are soft when wet.

## ***332—Tolo-Getaway complex, dry, 30 to 60 percent north slopes***

### ***Composition***

*Tolo and similar soils*—50 percent  
*Getaway and similar soils*—35 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Tolo—north-facing concave backslopes and V-shaped drainageways on backslopes; Getaway—north-facing convex backslopes

*Landform:* Canyons

*Parent material:* Tolo—volcanic ash over loess and colluvium derived from basalt; Getaway—colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part

*Elevation:* 2,800 to 5,000 feet

*Native plants:* Ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—15 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Tolo***

1 inch to 0—mostly decomposed needles and twigs

0 to 1 inch—dark brown silt loam

1 to 20 inches—brown silt loam

20 to 23 inches—dark grayish brown silt loam

23 to 33 inches—brown silt loam

33 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tolo***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Getaway***

1 inch to 0—needles and twigs

0 to 13 inches—very dark brown cobbly silt loam

13 to 48 inches—dark brown very cobbly silty clay loam

48 inches—basalt

### ***Properties and Qualities of Getaway***

*Depth to bedrock:* 40 to 60 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 18 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Anatone and Bocker soils on convex backslopes
- Klickson soils on lower convex backslopes
- Harlow and Snell soils on adjacent south-facing backslopes
- Wallowa and Bocker soils on mounds and in intermounds of adjacent higher plateaus

### ***Major Use***

Tolo and Getaway—timber production



### ***Major Management Limitations***

Tolo and Getaway—soil compaction, slope, water erosion, equipment operability,  
plant competition, soil displacement, sheet and rill erosion, dustiness

Tolo—cut and fill erosion

Getaway—cobbles on soil surface, seedling mortality, fire damage

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Special precautions may be needed to control soil loss following activities that expose the soils.
- Uncontrolled competing vegetation may retard reforestation.
- Erosion control measures are needed to reduce soil loss from cut and fill slopes on the Tolo soil.
- Because the Getaway soil is droughty, mortality of tree seedlings can be expected.
- Prescribed burning or natural fires of moderate intensity on the Getaway soil may result in the loss of soil, loss of nutrients, and water repellency.
- Unsurfaced roads are very dusty when dry because of the surface volcanic ash.
- Unsurfaced roads on hillsides are sticky when wet because of slightly clayey lower layers. Skid trails on the Tolo soil are soft.

## ***333—Tolo-Olot complex, 2 to 15 percent slopes***

### ***Composition***

*Tolo and similar soils*—50 percent

*Olot and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Tolo—concave summits; Olot—summits

*Landform:* Plateaus, structural benches

*Parent material:* Tolo—volcanic ash over loess and colluvium derived from basalt;

Olot—volcanic ash over colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea,  
pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 25 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Tolo***

1 inch to 0—mostly decomposed needles and twigs

0 to 1 inch—dark brown silt loam

1 to 20 inches—brown silt loam

20 to 23 inches—dark grayish brown silt loam

23 to 33 inches—brown silt loam

33 to 60 inches—brown silty clay loam

### ***Properties and Qualities of Tolo***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Moderate

### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Moderate

### ***Contrasting Inclusions***

- Anatone soils on shoulders
- Cowsly soils on concave summits
- Linecreek soils on footslopes

### ***Major Use***

Tolo and Olot—timber production

### ***Major Management Limitations***

Tolo and Olot—soil compaction, seedling mortality, plant competition, puddling, dustiness

Olot—windthrow

### ***General Management Considerations***

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are sticky and soft when wet because of the clayey lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Trees may be blown down when the Olot soil is wet and winds are strong.

### **334—Tolo-Olot complex, 15 to 30 percent south slopes**

#### ***Composition***

*Tolo and similar soils*—55 percent

*Olot and similar soils*—30 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Tolo—south-facing footslopes and concave backslopes; Olot—south-facing shoulders and convex backslopes

*Landform:* Mountains

*Parent material:* Tolo—volcanic ash over loess and colluvium derived from basalt;  
Olot—volcanic ash over colluvium and residuum derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Tolo***

1 inch to 0—mostly decomposed needles and twigs

0 to 1 inch—dark brown silt loam

1 to 20 inches—brown silt loam

20 to 23 inches—dark grayish brown silt loam

23 to 33 inches—brown silt loam

33 to 60 inches—brown silty clay loam

#### ***Properties and Qualities of Tolo***

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 20 to 30 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 16 inches

*Hazard of erosion:* Severe

#### ***Typical Profile of Olot***

1 inch to 0—mostly undecomposed pine needles and twigs

0 to 2 inches—very dark grayish brown silt loam

2 to 6 inches—dark brown silt loam

6 to 19 inches—brown silt loam

19 to 23 inches—dark brown very cobbly silt loam

23 to 36 inches—dark brown extremely cobbly silty clay loam

36 inches—basalt

#### ***Properties and Qualities of Olot***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Anatone soils on shoulders and convex backslopes
- Cowsly soils on footslopes and concave backslopes
- Linecreek soils in V-shaped drainageways of backslopes

### ***Major Use***

Tolo and Olot—timber production

### ***Major Management Limitations***

Tolo and Olot—sheet and rill erosion, equipment limitations, soil compaction, seedling mortality, plant competition, puddling, dustiness

Tolo—cut and fill erosion

Olot—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Unsurfaced roads and skid trails are sticky and soft when wet because of the clayey lower layers.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Erosion control measures are needed on the Tolo soil to reduce soil loss from cut and fill slopes.
- Because of the depth to bedrock, trees on the Olot soil may be blown down when the soil is wet and winds are strong.

## ***335—Topper silt loam, 2 to 8 percent slopes***

### ***Composition***

*Topper and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Footslopes and drainageways

*Landform:* Hills

*Parent material:* Loess with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 6 inches—very dark brown silt loam

6 to 11 inches—dark brown silt loam

11 to 15 inches—brown silt loam  
 15 to 25 inches—dark brown silt loam  
 25 to 35 inches—dark yellowish brown silty clay loam  
 35 to 60 inches—brown silt loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to calcium carbonate layer:* 20 to 40 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 16 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 11 inches  
*Hazard of erosion:* Slight  
*Shrink-swell potential:* Moderate  
*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Powwatka soils on shoulders
- Parsnip soils on gentle rises of summits
- Hurwal soils in depressions of footslopes

### ***Major Uses***

Nonirrigated cropland, livestock grazing, homesites

### ***Major Management Limitations***

Frost heaving, corrosivity, cool winter temperatures

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.

#### **Livestock grazing**

- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Unsurfaced roads are dusty when dry.

## ***336—Topper silt loam, 8 to 15 percent slopes***

### ***Composition***

*Topper and similar soils*—85 percent  
*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Backslopes

*Landform:* Hills

*Parent material:* Loess with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 4,500 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile***

0 to 6 inches—very dark brown silt loam

6 to 11 inches—dark brown silt loam

11 to 15 inches—brown silt loam

15 to 25 inches—dark brown silt loam

25 to 35 inches—dark yellowish brown silty clay loam

35 to 60 inches—brown silt loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to calcium carbonate layer:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 16 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 11 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* Moderate

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Powwatka soils on shoulders
- Parsnip soils on convex backslopes
- Hurwal soils in depressions of backslopes

### ***Major Uses***

Nonirrigated cropland, livestock grazing, homesites

### ***Major Management Limitations***

Water erosion, frost heaving, corrosivity, cool winter temperatures

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- Soil erosion caused by snowmelt and runoff in winter reduces productivity unless conservation practices are applied.

#### **Livestock grazing**

- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.

- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- Unsurfaced roads are dusty when dry.

### **337—Topper silt loam, 15 to 30 percent north slopes**

#### **Composition**

*Topper and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position*: North-facing backslopes

*Landform*: Hills

*Parent material*: Loess with an influence of volcanic ash in the upper part

*Elevation*: 3,400 to 4,500 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass, chokecherry, snowberry

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile**

0 to 6 inches—very dark brown silt loam

6 to 11 inches—dark brown silt loam

11 to 15 inches—brown silt loam

15 to 25 inches—dark brown silt loam

25 to 35 inches—dark yellowish brown silty clay loam

35 to 60 inches—brown silt loam

#### **Soil Properties and Qualities**

*Depth to bedrock*: More than 60 inches

*Depth to calcium carbonate layer*: 20 to 40 inches

*Thickness of volcanic ash influence*: Extends to a depth of 10 to 16 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 11 inches

*Hazard of erosion*: Severe

*Corrosivity to uncoated steel*: High



***Contrasting Inclusions***

- Powwatka soils on backslopes
- Parsnip soils on shoulders and convex backslopes
- Hurwal soils on footslopes

***Major Use***

Livestock grazing

***Major Management Limitations***

Water erosion, corrosivity, cool winter temperatures

***General Management Considerations******Livestock grazing***

- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits production and seasonal availability of forage.

***338—Topper silt loam, 15 to 30 percent south slopes******Composition***

*Topper and similar soils*—85 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position*: South-facing backslopes

*Landform*: Hills

*Parent material*: Loess with an influence of volcanic ash in the upper part

*Elevation*: 3,400 to 4,500 feet

*Native plants*: Bluebunch wheatgrass, Idaho fescue

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

***Typical Profile***

0 to 6 inches—very dark brown silt loam

6 to 11 inches—dark brown silt loam

11 to 15 inches—brown silt loam

15 to 25 inches—dark brown silt loam

25 to 35 inches—dark yellowish brown silty clay loam

35 to 60 inches—brown silt loam

***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to calcium carbonate layer:* 20 to 40 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 16 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 11 inches

*Hazard of erosion:* Severe

*Corrosivity to uncoated steel:* High

### ***Contrasting Inclusions***

- Powwatka soils on middle backslopes
- Parsnip soils on shoulders and convex backslopes
- Hurwal soils on footslopes

### ***Major Use***

Livestock grazing

### ***Major Management Limitations***

Water erosion, corrosivity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- High corrosivity may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- This soil is on warmer south-facing slopes; therefore, the growing season starts earlier and ends sooner than on north-facing slopes.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.
- The low annual precipitation limits the production and seasonal availability of forage.

## ***339—Troutmeadows-Crawfish complex, 2 to 15 percent slopes***

### ***Composition***

*Troutmeadows and similar soils*—65 percent

*Crawfish and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Troutmeadows—gentle rises of summits; Crawfish—depressions of summits

*Landform:* Mountains

*Parent material:* Troutmeadows—volcanic ash over colluvium and residuum derived from basalt; Crawfish—colluvium and residuum derived from basalt

*Elevation:* 5,800 to 6,400 feet

*Native plants:* Troutmeadows—subalpine fir, Engelmann spruce, big huckleberry, grouse huckleberry, sedge, violet, sidebells shinleaf; Crawfish—green fescue, western needlegrass, sedge, lupine

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 70 days

*Time of year more than 2 feet of snow on ground:* January through March

***Typical Profile of Troutmeadows***

1 inch to 0—partially decomposed needles and twigs

0 to 3 inches—dark brown silt loam

3 to 16 inches—brown silt loam

16 to 23 inches—dark yellowish brown very cobbly loam

23 to 30 inches—dark brown very cobbly loam

30 inches—basalt

***Properties and Qualities of Troutmeadows***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 14 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight or moderate

***Typical Profile of Crawfish***

0 to 3 inches—dark brown very cobbly loam

3 to 9 inches—dark brown extremely cobbly loam

9 inches—basalt

***Properties and Qualities of Crawfish***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Slight or moderate

***Contrasting Inclusions***

- Mountemily soils on shoulders and backslopes
- Puzzlecreek soils on shoulders

***Major Uses***

Troutmeadows—timber production

Crawfish—livestock grazing

***Major Management Limitations***

Troutmeadows—soil compaction, windthrow, plant competition, puddling, dustiness

Crawfish—depth to bedrock, permeability, water erosion, frost heaving, available water capacity, cold winter temperatures

***General Management Considerations******Livestock grazing***

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.

- The upper layer of the soil is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- Because of the high potential for frost action, there is a risk of winterkill and seedling damage.
- Droughtiness limits the success of seedlings and the choice of species for range seedings.
- Cold soil temperatures and a short growing season limit the period of plant growth.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because of the depth to bedrock, trees may be blown down when the soil is wet and winds are strong.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.

### **340—Tuckerdowns gravelly loam, 2 to 8 percent slopes**

#### **Composition**

*Tuckerdowns and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Treads

*Landform:* Old, partially dissected stream terraces

*Parent material:* Alluvium with an influence of loess in the upper part

*Elevation:* 3,700 to 4,400 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### **Typical Profile**

0 to 10 inches—very dark brown gravelly loam

10 to 17 inches—very dark grayish brown gravelly loam

17 to 33 inches—brown very gravelly sandy clay loam

33 to 60 inches—multicolored extremely gravelly sandy loam

#### **Soil Properties and Qualities**

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly or extremely gravelly calcic horizon:* 15 to 24 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* Moderate

*Corrosivity to uncoated steel:* Moderate

***Contrasting Inclusions***

- Hurwal soils on adjacent toeslopes
- Topper soils on adjacent toeslopes

***Major Uses***

Nonirrigated cropland, livestock grazing, homesites

***Major Management Limitations***

Water erosion, available water capacity, depth to very gravelly or extremely gravelly layers, permeability, frost heaving

***General Management Considerations*****Nonirrigated cropland**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- The risk of seepage limits construction of water impoundments.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.

**Livestock grazing**

- The risk of seepage limits construction of water impoundments.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

**Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- The lower layers may be too gravelly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.
- Unsurfaced roads are dusty when dry.

***341—Tuckerdowns gravelly loam, 8 to 15 percent slopes******Composition***

*Tuckerdowns and similar soils*—85 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position*: Risers

*Landform*: Old, partially dissected stream terraces

*Parent material*: Alluvium with an influence of loess in the upper part

*Elevation*: 3,700 to 4,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

***Typical Profile***

0 to 10 inches—very dark brown gravelly loam

10 to 17 inches—very dark grayish brown gravelly loam

17 to 33 inches—brown very gravelly sandy clay loam  
 33 to 60 inches—multicolored extremely gravelly sandy loam

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches  
*Depth to very gravelly or extremely gravelly calcic horizon:* 15 to 24 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 5 inches  
*Hazard of erosion:* Moderate  
*Shrink-swell potential:* Moderate  
*Corrosivity to uncoated steel:* Moderate

### ***Contrasting Inclusions***

- Hurwal soils on adjacent footslopes
- Topper soils on adjacent footslopes

### ***Major Uses***

Nonirrigated cropland, livestock grazing, homesites

### ***Major Management Limitations***

Water erosion, available water capacity, depth to very gravelly or extremely gravelly layers, permeability, frost heaving

### ***General Management Considerations***

#### **Nonirrigated cropland**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- The risk of seepage limits construction of water impoundments.
- Soil erosion caused by snowmelt and runoff in winter reduces productivity unless conservation practices are applied.

#### **Livestock grazing**

- The risk of seepage limits construction of water impoundments.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production because of the very gravelly or extremely gravelly lower layers.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Homesites**

- Frost action limits construction of access roads, driveways, and buildings.
- The quality of roadbeds and road surfaces can be adversely affected by frost action.
- Excavation increases the risk of water erosion.
- Disturbed areas are subject to soil erosion.
- Cutbanks are not stable and therefore are subject to slumping.
- Cutbanks in excavated areas may not be stable and may cave in.
- The steepness of slope may make special design of absorption lines, buildings, and access roads necessary.
- The lower layers may be too gravelly for use as landscaping material. Stockpile topsoil and use it to reclaim areas disturbed during construction.

- Unsurfaced roads are dusty when dry.

### **342—Tuckerdowns gravelly loam, 15 to 30 percent south slopes**

#### ***Composition***

*Tuckerdowns and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: South-facing risers

*Landform*: Old, partially dissected stream terraces

*Parent material*: Alluvium with an influence of loess in the upper part

*Elevation*: 3,700 to 4,400 feet

*Native plants*: Bluebunch wheatgrass, Idaho fescue

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile***

0 to 10 inches—very dark brown gravelly loam

10 to 17 inches—very dark grayish brown gravelly loam

17 to 33 inches—brown very gravelly sandy clay loam

33 to 60 inches—multicolored extremely gravelly sandy loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Depth to very gravelly or extremely gravelly calcic horizon*: 15 to 24 inches

*Drainage class*: Well drained

*Permeability*: Moderate

*Available water capacity*: About 5 inches

*Hazard of erosion*: Severe

*Corrosivity to uncoated steel*: Moderate

#### ***Contrasting Inclusions***

- Hurwal soils on adjacent footslopes
- Topper soils on adjacent footslopes

#### ***Major Uses***

Nonirrigated cropland, livestock grazing

#### ***Major Management Limitations***

Water erosion, available water capacity, depth to very gravelly or extremely gravelly layers, permeability

#### ***General Management Considerations***

##### **Nonirrigated cropland**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- The risk of seepage limits construction of water impoundments.



- Bunch-type species generally increase the risk of erosion on nonirrigated pastures by exposing areas of the soil.
- Seedbed preparation up and down the slope may accelerate soil erosion.
- Soil erosion caused by snowmelt and runoff in winter reduces the productivity of the soil unless conservation practices are applied.

#### **Livestock grazing**

- The risk of seepage limits construction of water impoundments.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production because of the very gravelly or extremely gravelly lower layers.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

### **343—Vandamine-Bordengulch complex, 30 to 60 percent north slopes**

#### **Composition**

*Vandamine and similar soils*—60 percent

*Bordengulch and similar soils*—25 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Vandamine—north-facing concave backslopes; Bordengulch—north-facing convex backslopes

*Landform:* Mountains

*Parent material:* Volcanic ash over colluvium and residuum derived from argillite

*Elevation:* 5,400 to 6,800 feet

*Native plants:* Vandamine—subalpine fir, Engelmann spruce, big huckleberry, grouse huckleberry, sedge, violet, sidebells shinleaf; Bordengulch—subalpine fir, Engelmann spruce, grouse huckleberry, pinegrass, sedge, heartleaf arnica, violet, sidebells shinleaf, skunk-leaved polemonium

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 65 days

#### **Typical Profile of Vandamine**

0.5 inch to 0—partially decomposed needles, twigs, and grass

0 to 7 inches—dark brown silt loam

7 to 19 inches—dark yellowish brown loam

19 to 28 inches—dark yellowish brown very gravelly loam

28 to 39 inches—yellowish brown very gravelly sandy loam

39 to 60 inches—dark yellowish brown very cobbly loam

#### **Properties and Qualities of Vandamine**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

### ***Typical Profile of Bordengulch***

1 inch to 0—partially decomposed needles, grass, and twigs

0 to 6 inches—dark brown silt loam

6 to 13 inches—brown loam

13 to 25 inches—dark yellowish brown very cobbly loam

25 to 35 inches—yellowish brown extremely cobbly sandy loam

35 inches—argillite

### ***Properties and Qualities of Bordengulch***

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Slicklog and Eastpine soils on lower backslopes
- Mountemily soils on concave backslopes underlain by basalt
- Troutmeadows soils on convex backslopes underlain by basalt

### ***Major Use***

Vandamine and Bordengulch—timber production

### ***Major Management Limitations***

Vandamine and Bordengulch—sheet and rill erosion, equipment limitations, soil compaction, soil displacement, plant competition, puddling, dustiness

Bordengulch—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes limit the use of wheeled and tracked ground-based equipment.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on the Vandamine soil are soft when wet.
- Unsurfaced roads on the Bordengulch soil are firm when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on the Bordengulch soil may be blown down when the soil is wet and winds are strong.

### **344—Vandamine-Bordengulch-Rock outcrop complex, 60 to 90 percent north slopes**

#### **Composition**

*Vandamine and similar soils*—50 percent

*Bordengulch and similar soils*—25 percent

*Rock outcrop*—10 percent

*Contrasting inclusions*—15 percent

#### **Setting**

*Landscape position:* Vandamine—north-facing concave backslopes; Bordengulch—north-facing convex backslopes; Rock outcrop (horizontal layers of exposed bedrock)—north-facing backslopes

*Landform:* Mountains

*Parent material:* Vandamine and Bordengulch—volcanic ash over colluvium and residuum derived from argillite

*Elevation:* 5,400 to 6,800 feet

*Native plants:* Vandamine—subalpine fir, Engelmann spruce, big huckleberry, grouse huckleberry, sedge, violet, sidebells shinleaf; Bordengulch—subalpine fir, Engelmann spruce, grouse huckleberry, pinegrass, sedge, heartleaf arnica, violet, sidebells shinleaf, skunk-leaved polemonium

*Climatic factors:*

Mean annual precipitation—30 to 45 inches

Mean annual air temperature—35 to 41 degrees F

Frost-free period—25 to 65 days

#### **Typical Profile of Vandamine**

0.5 inch to 0—partially decomposed needles, twigs, and grass

0 to 7 inches—dark brown silt loam

7 to 19 inches—dark yellowish brown loam

19 to 28 inches—dark yellowish brown very gravelly loam

28 to 39 inches—yellowish brown very gravelly sandy loam

39 to 60 inches—dark yellowish brown very cobbly loam

#### **Properties and Qualities of Vandamine**

*Depth to bedrock:* More than 60 inches

*Thickness of volcanic ash mantle:* Extends to a depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 6 inches

*Hazard of erosion:* Very severe

#### **Typical Profile of Bordengulch**

1 inch to 0—partially decomposed needles, grass, and twigs

0 to 6 inches—dark brown silt loam

6 to 13 inches—brown loam

13 to 25 inches—dark yellowish brown very cobbly loam

25 to 35 inches—yellowish brown extremely cobbly sandy loam

35 inches—argillite

#### **Properties and Qualities of Bordengulch**

*Depth to bedrock:* 20 to 40 inches

*Thickness of volcanic ash mantle:* Extends to depth of 7 to 14 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 5 inches

*Hazard of erosion:* Very severe

### ***Contrasting Inclusions***

- Slicklog and Eastpine soils on lower backslopes
- Mountemily soils on concave backslopes underlain by basalt
- Troutmeadows soils convex backslopes underlain by basalt
- Rubble land near areas of Rock outcrop

### ***Major Use***

Vandamine and Bordengulch—timber production

### ***Major Management Limitations***

Vandamine and Bordengulch—sheet and rill erosion, equipment limitations, soil compaction, cut and fill erosion, soil displacement, plant competition, puddling, dustiness

Bordengulch—windthrow

### ***General Management Considerations***

#### **Timber production**

- Special precautions may be needed to control soil loss following activities that expose the soils.
- The steep slopes prevent the use of wheeled and tracked ground-based equipment.
- Midslope roads are difficult to maintain and require large cuts and fills that remove land from production.
- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- The soils are susceptible to being pushed from their natural position during equipment operations.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads on the Vandamine soil are soft when wet.
- Unsurfaced roads on the Bordengulch soil are firm when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.
- Because of the depth to bedrock, trees on the Bordengulch soil may be blown down when the soil is wet and winds are strong.

## ***345—Veazie loam, 0 to 3 percent slopes***

### ***Composition***

*Veazie and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Nearly level areas

*Landform:* Flood plains

*Parent material:* Stratified mixed alluvium

*Elevation:* 1,600 to 3,400 feet

*Native plants:* Willow, basin wildrye, cottonwood, alder, sedge, hawthorn, rose, rush

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

### ***Typical Profile***

0 to 19 inches—black loam

19 to 28 inches—very dark brown loam

28 to 34 inches—dark brown very gravelly loamy sand

34 to 60 inches—dark brown very gravelly sand

### ***Soil Properties and Qualities***

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly sandy layers:* 20 to 30 inches

*Drainage class:* Well drained

*Depth to water table (apparent):* 3.5 to 6.0 feet in January through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 6 inches

*Frequency of flooding:* Occasional in March through June

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Voats soils on gentle convex rises
- Catherine soils in depressions
- Balm soils on adjacent slightly higher flood plains

### ***Major Use***

Hay and pasture

### ***Major Management Limitations***

Flooding, permeability, depth to very gravelly sandy layers, available water capacity

### ***General Management Considerations***

#### ***Hay and pasture***

- The very rapid permeability increases the risk of deep percolation of irrigation water below the root zone.
- The contrasting very gravelly sandy layers restrict the growth of deep-rooted plants.
- The risk of seepage limits construction of water impoundments.
- Heavy season-long grazing in riparian areas may decrease the abundance of plants that help to stabilize streambanks and moderate water temperatures.
- Periods of inundation may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.

## ***346—Voats-Veazie complex, 0 to 3 percent slopes***

### ***Composition***

*Voats and similar soils*—50 percent

*Veazie and similar soils*—35 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Voats—gentle convex rises; Veazie—depressions

*Landform:* Flood plains (fig. 19)

*Parent material:* Stratified mixed alluvium



**Figure 19.—Area of Voats-Veazie complex, 0 to 3 percent slopes, on flood plains adjacent to the Lostine River. This area is northwest of the town of Lostine.**

*Elevation:* 1,600 to 3,400 feet

*Native plants:* Willow, basin wildrye, cottonwood, alder, sedge, hawthorn, rose, rush

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile of Voats***

0 to 15 inches—very dark brown fine sandy loam

15 to 23 inches—very dark brown very cobbly loamy sand

23 to 60 inches—very dark grayish brown very cobbly sand

#### ***Properties and Qualities of Voats***

*Depth to bedrock:* More than 60 inches

*Depth to very cobbly sandy layers:* 10 to 20 inches

*Drainage class:* Well drained

*Depth to water table (apparent):* 3.5 to 6.0 feet in January through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 3 inches

*Frequency of flooding:* Occasional in March through June

*Hazard of erosion:* Slight

#### ***Typical Profile of Veazie***

0 to 19 inches—black loam

19 to 28 inches—very dark brown loam

28 to 34 inches—dark brown very gravelly loamy sand

34 to 60 inches—dark brown very gravelly sand

### ***Properties and Qualities of Veazie***

*Depth to bedrock:* More than 60 inches

*Depth to very gravelly sandy layers:* 20 to 30 inches

*Drainage class:* Well drained

*Depth to water table (apparent):* 3.5 to 6.0 feet in January through June

*Permeability:* Moderate in the upper part and very rapid in the lower part

*Available water capacity:* About 6 inches

*Frequency of flooding:* Occasional in March through June

*Hazard of erosion:* Slight

### ***Contrasting Inclusions***

- Hershall soils in depressions
- Riverwash on flood plains adjacent to or in streams
- Balm soils on adjacent, slightly higher flood plains

### ***Major Uses***

Voats and Veazie—hay and pasture, livestock grazing

### ***Major Management Limitations***

Voats and Veazie—flooding, permeability

Voats—depth to very cobbly sandy layers, available water capacity

Veazie—depth to very gravelly sandy layers

### ***General Management Considerations***

#### **Hay and pasture**

- The very rapid permeability increases the risk of deep percolation of irrigation water below the root zone.
- The contrasting very gravelly and very cobbly sandy layers restrict the growth of deep-rooted plants.
- The available moisture in the Voats soil limits production to drought-tolerant crops.
- Because the Voats soil is droughty, irrigation water must be carefully managed to avoid crop stress and a subsequent decrease in production.
- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.
- The risk of seepage limits construction of water impoundments.
- Heavy season-long grazing in riparian areas may decrease the abundance of plants that help to stabilize streambanks and moderate water temperatures.
- Periods of inundation may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.

#### **Livestock grazing**

- Periods of inundation may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- Surface and subsurface flows from adjacent uplands contribute to the amount of available water.
- Droughtiness of the Voats soil may limit the success of seedings and the choice of species for seedings.
- Road construction can block surface and subsurface flows.



### **347—Volstead-Quirk-Bocker complex, 0 to 15 percent slopes**

#### ***Composition***

*Volstead and similar soils*—35 percent

*Quirk and similar soils*—30 percent

*Bocker and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Volstead—concave summits and gentle backslopes; Quirk—concave summits; Bocker—convex summits and shoulders

*Landform:* Plateaus, structural benches

*Parent material:* Volstead—mixed loess and volcanic ash over colluvium and residuum derived from volcanic tuff over basalt; Quirk—mixed loess and volcanic ash over residuum derived from basalt; Bocker—loess and colluvium derived from basalt

*Elevation:* 3,600 to 4,600 feet

*Native plants:* Volstead—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Quirk—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Bocker—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Volstead***

1 inch to 0—needles, twigs, and logs

0 to 9 inches—dark reddish brown silt loam

9 to 13 inches—dark brown silt loam

13 to 23 inches—reddish brown silt loam

23 to 38 inches—brown gravelly clay loam

38 to 48 inches—brown gravelly clay

48 inches—basalt

#### ***Properties and Qualities of Volstead***

*Depth to bedrock:* 40 to 60 inches

*Depth to clayey layers:* 20 to 30 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

#### ***Typical Profile of Quirk***

1 to 0.5 inch—slightly decomposed grass, moss, pine needles, and twigs

0.5 inch to 0—decomposed organic matter

0 to 12 inches—dark brown silt loam

12 to 21 inches—brown loam  
 21 to 33 inches—reddish brown clay  
 33 to 37 inches—reddish brown very cobbly clay  
 37 inches—basalt

### ***Properties and Qualities of Quirk***

*Depth to bedrock:* 20 to 40 inches  
*Depth to claypan:* 20 to 30 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Well drained  
*Permeability:* Slow  
*Available water capacity:* About 6 inches  
*Hazard of erosion:* Slight or moderate  
*Shrink-swell potential:* High in the claypan

### ***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam  
 2 to 7 inches—dark brown very cobbly silt loam  
 7 inches—basalt with coatings of clay in the cracks

### ***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches  
*Drainage class:* Well drained  
*Permeability:* Moderate  
*Available water capacity:* About 0.5 inch  
*Hazard of erosion:* Severe

### ***Contrasting Inclusions***

- Anatone soils on ridges, summits, and shoulders adjacent to areas of the Bocker soil
- Klickson soils on adjacent north-facing footslopes
- Rock outcrop on shoulders adjacent to areas of the Bocker soil
- Snell soils on summits

### ***Major Uses***

Volstead and Quirk—timber production  
 Bocker—livestock grazing

### ***Major Management Limitations***

Volstead and Quirk—soil compaction, seedling mortality, plant competition, puddling, dustiness  
 Quirk—windthrow, depth to claypan, available water capacity  
 Bocker—depth to bedrock, permeability, water erosion, available water capacity, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- The upper layer of the soil is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.

- Droughtiness of the soil limits the success of seedlings and the choice of species for range seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Because of the depth to bedrock, trees on the Quirk soil may be blown down when the soil is wet and winds are strong.

### ***348—Volstead-Quirk-Bocker complex, 15 to 30 percent slopes***

#### ***Composition***

*Volstead and similar soils*—35 percent

*Quirk and similar soils*—30 percent

*Bocker and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Volstead—backslopes; Quirk—narrow concave summits and backslopes; Bocker—narrow convex summits and backslopes

*Landform:* Plateaus

*Parent material:* Volstead—mixed loess and volcanic ash over colluvium and residuum derived from volcanic tuff over basalt; Quirk—mixed loess and volcanic ash over residuum derived from basalt; Bocker—loess and colluvium derived from basalt

*Elevation:* 3,600 to 4,600 feet

*Native plants:* Volstead—Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Quirk—ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica; Bocker—Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—17 to 24 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Volstead***

1 inch to 0—needles, twigs, and logs  
 0 to 9 inches—dark reddish brown silt loam  
 9 to 13 inches—dark brown silt loam  
 13 to 23 inches—reddish brown silt loam  
 23 to 38 inches—brown gravelly clay loam  
 38 to 48 inches—brown gravelly clay  
 48 inches—basalt

***Properties and Qualities of Volstead***

*Depth to bedrock:* 40 to 60 inches

*Depth to clayey layers:* 20 to 30 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 10 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High

***Typical Profile of Quirk***

1 to 0.5 inch—slightly decomposed grass, moss, pine needles, and twigs

0.5 inch to 0—decomposed organic matter

0 to 12 inches—dark brown silt loam

12 to 21 inches—brown loam

21 to 33 inches—reddish brown clay

33 to 37 inches—reddish brown very cobbly clay

37 inches—basalt

***Properties and Qualities of Quirk***

*Depth to bedrock:* 20 to 40 inches

*Depth to claypan:* 20 to 30 inches

*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Severe

*Shrink-swell potential:* High in the claypan

***Typical Profile of Bocker***

0 to 2 inches—very dark brown extremely cobbly silt loam

2 to 7 inches—dark brown very cobbly silt loam

7 inches—basalt with coatings of clay in the cracks

***Properties and Qualities of Bocker***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 0.5 inch

*Hazard of erosion:* Severe

***Contrasting Inclusions***

- Anatone soils on narrow summits and backslopes adjacent to areas of the Bocker soil
- Klickson soils on adjacent north-facing backslopes and footslopes
- Rock outcrop on shoulders adjacent to areas of the Bocker soil
- Snell soils on narrow summits and backslopes

***Major Uses***

Volstead and Quirk—timber production

Bocker—livestock grazing

### ***Major Management Limitations***

Volstead and Quirk—sheet and rill erosion, soil compaction, seedling mortality, plant competition, puddling, dustiness

Quirk and Bocker—available water capacity

Quirk—windthrow, depth to claypan

Bocker—depth to bedrock, water erosion, cool winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the soil restricts the rooting depth.
- The shallow depth of the soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits construction of water impoundments.
- The risk of soil loss from water erosion is high in areas where there is little plant cover protecting the surface layer.
- Droughtiness of the soil limits the success of seedlings and the choice of species for range seedings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

#### **Timber production**

- To minimize soil damage from compaction of the soils, carefully choose the type of equipment and the timing of operations.
- Because the soils are droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are dusty when dry.
- Because of the depth to bedrock, trees on the Quirk soil may be blown down when the soil is wet and winds are strong.

## ***349—Wallowa-Bocker complex, 2 to 15 percent slopes***

### ***Composition***

*Wallowa and similar soils*—50 percent

*Bocker and similar soils*—40 percent

*Contrasting inclusions*—10 percent

### ***Setting***

*Landscape position:* Wallowa—mounds in areas of patterned ground in the middle portion of summits; Bocker—intermounds in areas of patterned ground in the middle portion of summits

*Landform:* Plateaus, structural benches

*Slope range:* Wallowa—2 to 15 percent, with steeper slopes on sides of mounds; Bocker—2 to 8 percent

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Wallowa—Idaho fescue, bluebunch wheatgrass; Bocker—bluebunch wheatgrass, Sandberg bluegrass, onespoke oatgrass, Idaho fescue

*Climatic factors:*

- Mean annual precipitation—13 to 17 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile of Wallowa***

- 0 to 11 inches—very dark brown silt loam
- 11 to 22 inches—dark brown silt loam
- 22 to 29 inches—dark yellowish brown silt loam
- 29 inches—basalt

***Properties and Qualities of Wallowa***

- Depth to bedrock:* 20 to 40 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 6 inches
- Hazard of erosion:* Slight or moderate

***Typical Profile of Bocker***

- 0 to 2 inches—very dark brown extremely cobbly silt loam
- 2 to 7 inches—dark brown very cobbly silt loam
- 7 inches—basalt with coatings of clay in the cracks

***Properties and Qualities of Bocker***

- Depth to bedrock:* 4 to 10 inches
- Drainage class:* Well drained
- Permeability:* Moderate
- Available water capacity:* About 0.5 inch
- Hazard of erosion:* Severe

***Contrasting Inclusions***

- Albee soils on mounds
- Harlow soils in intermounds

***Major Use***

Wallowa and Bocker—livestock grazing

***Major Management Limitations***

- Wallowa and Bocker—water erosion
- Wallowa—uneven ground, slope
- Bocker—available water capacity, depth to bedrock, cobbles on soil surface

***General Management Considerations*****Livestock grazing**

- The bedrock in the Bocker soil restricts the rooting depth.
- The shallow depth of the Bocker soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock limits the construction of water impoundments on the Bocker soil.
- Seeding areas that are in poor condition is difficult because of the depth of the Bocker soil.
- The upper layer of the Bocker soil is saturated following snowmelt.
- Erosion of the easily disturbed surface layer of the Bocker soil causes a change in the range site and a loss in the potential for forage production.

- Droughtiness of the Bocker soil may limit the success of seedlings and the choice of species for seedlings.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

### **350—Watama silt loam, 2 to 8 percent slopes**

#### ***Composition***

*Watama and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: Summits

*Landform*: Hills

*Parent material*: Loess and colluvium derived from basalt

*Elevation*: 2,700 to 3,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

#### ***Typical Profile***

0 to 10 inches—very dark brown silt loam

10 to 25 inches—very dark brown silty clay loam

25 inches—basalt

#### ***Soil Properties and Qualities***

*Depth to bedrock*: 20 to 40 inches

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: About 6 inches

*Hazard of erosion*: Slight or moderate

#### ***Contrasting Inclusions***

- Ramo soils on adjacent summits of plateaus and benches
- Laufer and Thiessen soils on adjacent summits and backslopes
- Snell soils on adjacent north-facing backslopes

#### ***Major Uses***

Nonirrigated cropland, livestock grazing

#### ***Major Management Limitations***

Few limitations other than climate

#### ***General Management Considerations***

##### **Nonirrigated cropland**

- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.



**Livestock grazing**

- Low precipitation limits the production and seasonal availability of forage.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

**351—Watama silt loam, 8 to 15 percent slopes****Composition**

*Watama and similar soils*—85 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position*: Backslopes

*Landform*: Hills

*Parent material*: Loess and colluvium derived from basalt

*Elevation*: 2,700 to 3,400 feet

*Native plants*: Idaho fescue, bluebunch wheatgrass

*Climatic factors*:

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

**Typical Profile**

0 to 10 inches—very dark brown silt loam

10 to 25 inches—very dark brown silty clay loam

25 inches—basalt

**Soil Properties and Qualities**

*Depth to bedrock*: 20 to 40 inches

*Drainage class*: Well drained

*Permeability*: Moderately slow

*Available water capacity*: About 6 inches

*Hazard of erosion*: Moderate

**Contrasting Inclusions**

- Ramo soils on summits and footslopes of adjacent plateaus and structural benches
- Laufer and Thiessen soils on adjacent summits and backslopes
- Snell soils on adjacent north-facing backslopes

**Major Uses**

Nonirrigated cropland, livestock grazing

**Major Management Limitation**

Water erosion

**General Management Considerations****Nonirrigated cropland**

- Soil erosion caused by snowmelt and runoff in winter reduces productivity unless conservation practices are applied.
- The low annual precipitation restricts annual cropping unless supplemental irrigation is used.

**Livestock grazing**

- Low precipitation limits the production and seasonal availability of forage.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

**352—Watama-Rockly complex, 2 to 15 percent slopes*****Composition***

*Watama and similar soils*—50 percent

*Rockly and similar soils*—35 percent

*Contrasting inclusions*—15 percent

***Setting***

*Landscape position:* Watama—mounds in areas of patterned ground on summits;

Rockly—intermounds in areas of patterned ground on summits

*Landform:* Plateaus, structural benches

*Parent material:* Loess and colluvium derived from basalt

*Elevation:* 2,700 to 3,400 feet

*Native plants:* Watama—Idaho fescue, bluebunch wheatgrass; Rockly—Sandberg bluegrass, bluebunch wheatgrass, onespike oatgrass, Idaho fescue

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—45 to 50 degrees F

Frost-free period—100 to 120 days

***Typical Profile of Watama***

0 to 10 inches—very dark brown silt loam

10 to 25 inches—very dark brown silty clay loam

25 inches—basalt

***Properties and Qualities of Watama***

*Depth to bedrock:* 20 to 40 inches

*Drainage class:* Well drained

*Permeability:* Moderately slow

*Available water capacity:* About 6 inches

*Hazard of erosion:* Slight or moderate

***Typical Profile of Rockly***

0 to 3 inches—very dark brown very cobbly loam

3 to 7 inches—dark brown extremely gravelly loam

7 inches—basalt

***Properties and Qualities of Rockly***

*Depth to bedrock:* 4 to 10 inches

*Drainage class:* Well drained

*Permeability:* Moderate

*Available water capacity:* About 1 inch

*Hazard of erosion:* Slight or moderate

***Contrasting Inclusions***

- Laufer soils on adjacent summits and backslopes
- Thiessen soils on adjacent summits and backslopes

- Ramo soils on summits and backslopes of adjacent hills
- Snell soils on north-facing backslopes

### ***Major Use***

Watama and Rockly—livestock grazing

### ***Major Management Limitations***

Watama and Rockly—water erosion, uneven ground

Rockly—depth to bedrock, cobbles on soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- Seeding areas of the Rockly soil that are in poor condition is difficult because of the soil depth and cobbles.
- The bedrock restricts the rooting depth of the Rockly soil.
- Depth to bedrock limits the construction of water impoundments on the Rockly soil.
- The shallow depth of the Rockly soil limits use of conventional fencing and makes special design of fences necessary.
- Droughtiness of the Rockly soil may limit the success of seedings and the choice of species for seedings.
- Erosion of the easily disturbed surface layer of the Rockly soil causes a change in the range site and a loss in the potential for forage production.
- The low annual precipitation limits production and seasonal availability of forage.

## ***353—Water***

### ***Composition***

*Water*—95 percent

*Contrasting inclusions*—5 percent

### ***Description of Water***

Natural and artificial bodies of water, including water in depressions, constructed water impoundments that are more than 6 acres in size, major rivers, and glacial Wallowa Lake

### ***Contrasting Inclusions***

- Riverwash along major rivers and at the margins of Wallowa Lake
- Hapludolls on adjacent low stream terraces
- Endoaquolls on adjacent flood plains

## ***354—Wilkins silt loam, 0 to 5 percent slopes***

### ***Composition***

*Wilkins and similar soils*—85 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Depressions

*Landform:* Plateaus, mountain valleys

*Parent material:* Mixed loess and volcanic ash over alluvium derived from basalt

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Tufted hairgrass, sedge, rush, bluegrass

*Climatic factors:*

- Mean annual precipitation—17 to 24 inches
- Mean annual air temperature—42 to 45 degrees F
- Frost-free period—70 to 100 days

***Typical Profile***

- 0 to 10 inches—black silt loam
- 10 to 19 inches—very dark grayish brown silt loam
- 19 to 23 inches—grayish brown silt loam
- 23 to 25 inches—brown silt loam
- 25 to 32 inches—dark brown silty clay
- 32 to 52 inches—brown silty clay
- 52 to 70 inches—light olive brown, mottled loam
- 70 to 76 inches—light olive brown, mottled gravelly clay loam

***Soil Properties and Qualities***

- Depth to bedrock:* More than 60 inches
- Depth to claypan:* 15 to 30 inches
- Drainage class:* Somewhat poorly drained
- Depth to water table (perched):* 1.0 to 1.5 feet in February through June
- Permeability:* Very poor
- Available water capacity:* About 13 inches
- Frequency of flooding:* Occasional in February through May
- Hazard of erosion:* Slight
- Shrink-swell potential:* High in the claypan
- Potential for frost action:* High

***Contrasting Inclusions***

- Feaginranch soils near streambanks or old meander channels of flood plains
- Akerite soils on adjacent toeslopes adjacent to wet meadows
- Tolo soils on north-facing footslopes and toeslopes
- Syrupcreek and Tamara soils on north-facing footslopes

***Major Use***

Livestock grazing

***Major Management Limitations***

High water table, flooding, permeability, shrink-swell potential, depth to claypan

***General Management Considerations*****Livestock grazing**

- Periods of inundation may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- Wetness during the growing season may damage new seedlings and limit the choice of species for range seedings.
- The claypan restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- A seasonal high water table increases the amount of moisture in the soil.
- Surface and subsurface flows from adjacent uplands contribute to the amount of available water.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soil and plants may occur unless grazing is delayed until the soil is firm and the preferred forage plants can withstand the grazing pressure.

- Because of the high potential for frost action, there is a risk of winterkill and seedling damage.

### ***355—Wilkins-Feaginranch complex, 0 to 2 percent slopes***

#### ***Composition***

*Wilkins and similar soils*—55 percent

*Feaginranch and similar soils*—30 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Wilkins—nearly level mountain meadows adjacent to forested areas; Feaginranch—slightly concave, old stream meander channels of flood plains

*Landform:* Mountain valleys

*Parent material:* Wilkins—mixed loess and volcanic ash over alluvium derived from basalt; Feaginranch—stratified mixed alluvium with an influence of volcanic ash in the upper part

*Elevation:* 3,400 to 5,000 feet

*Native plants:* Wilkins—tufted hairgrass, sedge, rush, bluegrass; Feaginranch—Nebraska sedge, tufted hairgrass, camas lily

*Climatic factors:*

Mean annual precipitation—17 to 30 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period: Wilkins—70 to 100 days; Feaginranch—40 to 70 days

#### ***Typical Profile of Wilkins***

0 to 10 inches—black silt loam

10 to 19 inches—very dark grayish brown silt loam

19 to 23 inches—grayish brown silt loam

23 to 25 inches—brown silt loam

25 to 32 inches—dark brown silty clay

32 to 52 inches—brown silty clay

52 to 70 inches—light olive brown, mottled loam

70 to 76 inches—light olive brown, mottled gravelly clay loam

#### ***Properties and Qualities of Wilkins***

*Depth to bedrock:* More than 60 inches

*Depth to claypan:* 15 to 30 inches

*Drainage class:* Somewhat poorly drained

*Depth to water table (perched):* 1.0 to 1.5 feet in February through June

*Permeability:* Very slow

*Available water capacity:* About 13 inches

*Frequency of flooding:* Occasional in February through May

*Hazard of erosion:* Slight

*Shrink-swell potential:* High in the claypan

#### ***Typical Profile of Feaginranch***

5 inches to 0—dense root mat

0 to 13 inches—very dark gray, mottled silty clay loam

13 to 14 inches—dark gray silty clay loam

14 to 16 inches—dark grayish brown and yellowish brown silty clay loam

16 to 20 inches—very dark gray, mottled silty clay loam

20 to 24 inches—black, mottled silty clay loam  
24 to 37 inches—grayish brown, mottled silty clay  
37 to 61 inches—dark grayish brown, mottled gravelly clay loam

### ***Properties and Qualities of Feaginranch***

*Depth to bedrock:* More than 60 inches  
*Thickness of volcanic ash influence:* Extends to a depth of 10 to 20 inches  
*Drainage class:* Very poorly drained  
*Depth to water table (apparent):* 0.5 foot above the surface to a depth of 0.5 foot below the surface in February through July  
*Permeability:* Slow  
*Available water capacity:* About 13 inches  
*Frequency of flooding:* Occasional in February through May  
*Hazard of erosion:* Slight  
*Shrink-swell potential:* High  
*Potential for frost action:* High

### ***Contrasting Inclusions***

- Akerite soils on adjacent forested footslopes and toeslopes
- Tolo soils on adjacent north-facing toeslopes and footslopes
- Klicker soils on adjacent south-facing toeslopes and footslopes

### ***Major Use***

Wilkins and Feaginranch—livestock grazing

### ***Major Management Limitations***

Wilkins and Feaginranch—flooding, permeability, shrink-swell potential, frost action, high water table  
Wilkins—depth to claypan, cool winter temperatures  
Feaginranch—ponding, cold winter temperatures

### ***General Management Considerations***

#### **Livestock grazing**

- Seasonal ponding may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- The claypan in the Wilkins soil restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- Because of the high potential for frost action, there is a risk of winterkill and seedling damage.
- Surface and subsurface flows from adjacent uplands contribute to the amount of available water.
- Heavy season-long grazing in riparian areas may decrease the abundance of plants that help to stabilize streambanks and moderate water temperatures.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings on the Wilkins soil.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- Periods of inundation on the Feaginranch soil may damage new seedlings, increase the chance of winterkill, and limit the choice of species for range seedings.
- If waterfowl nesting is desired, grazing should be regulated to leave adequate nesting cover on the Feaginranch soil.
- Cold soil temperatures and a short growing season limit the period of plant growth on the Feaginranch soil.
- Road construction can block surface and subsurface flows.

### **356—*Wolot silt loam, 0 to 15 percent slopes***

#### ***Composition***

*Wolot and similar soils*—85 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position*: Toeslopes

*Landform*: Hills

*Parent material*: Volcanic ash over loess and colluvium

*Elevation*: 1,900 to 3,400 feet

*Native plants*: Douglas fir, ponderosa pine, common snowberry, shinyleaf spirea, pinegrass, elk sedge, heartleaf arnica

*Climatic factors*:

Mean annual precipitation—15 to 24 inches

Mean annual air temperature—45 to 48 degrees F

Frost-free period—100 to 150 days

#### ***Typical Profile***

1 inch to 0—mostly needles, twigs, and moss

0 to 12 inches—dark brown silt loam

12 to 21 inches—yellowish brown silt loam

21 to 48 inches—brown silt loam

48 to 60 inches—brown silty clay loam

#### ***Soil Properties and Qualities***

*Depth to bedrock*: More than 60 inches

*Thickness of volcanic ash mantle*: Extends to a depth of 20 to 35 inches

*Drainage class*: Well drained

*Permeability*: Moderately rapid in the upper part and moderately slow in the lower part

*Available water capacity*: About 15 inches

*Hazard of erosion*: Slight or moderate

#### ***Contrasting Inclusions***

- Emily soils on footslopes in areas adjacent to steep, rocky slopes
- Sopher soils on footslopes in areas adjacent to rocky and clayey slopes

#### ***Major Use***

Timber production

#### ***Major Management Limitations***

Soil compaction, seedling mortality, plant competition, puddling, dustiness

#### ***General Management Considerations***

##### **Timber production**

- To minimize soil damage from compaction, carefully choose the type of equipment and the timing of operations.
- Because the soil is hot and droughty, mortality of tree seedlings can be expected.
- Uncontrolled competing vegetation may retard reforestation.
- Unsurfaced roads and skid trails are soft when wet.
- Unsurfaced roads and skid trails are very dusty when dry because of the surface volcanic ash.



**357—Zumwalt-Harlow complex, 2 to 8 percent slopes****Composition**

*Zumwalt and similar soils*—65 percent

*Harlow and similar soils*—20 percent

*Contrasting inclusions*—15 percent

**Setting**

*Landscape position:* Zumwalt—concave areas of summits; Harlow—convex areas of summits

*Parent material:* Zumwalt—mixed volcanic ash and loess over residuum and colluvium derived from basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

**Typical Profile of Zumwalt Soils**

0 to 7 inches—black silt loam

7 to 9 inches—very dark grayish brown silt loam

9 to 21 inches—dark brown silty clay

21 to 37 inches—dark brown silty clay

37 inches—basalt

**Properties and Qualities of Zumwalt**

*Depth to bedrock:* 20 to 40 inches

*Depth to claypan:* 6 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight

*Shrink-swell potential:* High in the claypan

*Corrosivity to uncoated steel:* High

**Typical Profile of Harlow**

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

**Properties and Qualities of Harlow**

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Slight

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Snell soils on footslopes and summits
- Rock outcrop scattered throughout summits and on shoulders

### ***Major Use***

Zumwalt and Harlow—livestock grazing

### ***Major Management Limitations***

Zumwalt and Harlow—permeability, shrink-swell potential

Zumwalt—depth to claypan, corrosivity

Harlow—depth to clayey lower layers, stones on soil surface, depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- The claypan in the Zumwalt soil restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- The clayey lower layers of the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
- Droughtiness of the Harlow soil may limit the success of seedings and the choice of species for seedings.
- High corrosivity of the Zumwalt soil may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The upper layer of the soils is saturated following snowmelt because of the claypan and the clayey lower layers.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

## ***358—Zumwalt-Harlow complex, 8 to 15 percent slopes***

### ***Composition***

*Zumwalt and similar soils*—65 percent

*Harlow and similar soils*—20 percent

*Contrasting inclusions*—15 percent

### ***Setting***

*Landscape position:* Zumwalt—concave backslopes and footslopes; Harlow—convex backslopes and shoulders

*Landform:* Hills, plateaus

*Parent material:* Zumwalt—mixed volcanic ash and loess over residuum and colluvium derived from basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 3,500 to 5,000 feet

*Native plants:* Idaho fescue, bluebunch wheatgrass

*Climatic factors:*

Mean annual precipitation—13 to 17 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

### ***Typical Profile of Zumwalt***

0 to 7 inches—black silt loam

7 to 9 inches—very dark grayish brown silt loam

9 to 21 inches—dark brown silty clay

21 to 37 inches—dark brown silty clay

37 inches—basalt

### ***Properties and Qualities of Zumwalt***

*Depth to bedrock:* 20 to 40 inches

*Depth to claypan:* 8 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High in the claypan

*Corrosivity to uncoated steel:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt and tuff

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1 inch

*Hazard of erosion:* Moderate

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Snell soils on footslopes
- Rock outcrop scattered throughout and on shoulders

### ***Major Use***

Zumwalt and Harlow—livestock grazing

### ***Major Management Limitations***

Zumwalt and Harlow—permeability, shrink-swell potential, water erosion

Zumwalt—depth to claypan, corrosivity

Harlow—depth to clayey lower layers, stones on soil surface, depth to bedrock

### ***General Management Considerations***

#### **Livestock grazing**

- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.

- The claypan in the Zumwalt soil restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.
- The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
- Droughtiness of the Harlow soil may limit the success of seedlings and the choice of species for seedlings.
- High corrosivity of the Zumwalt soil may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The upper layer of the soils is saturated following snowmelt because of the claypan and the clayey lower layers.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedlings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.

### ***359—Zumwalt-Harlow complex, moist, 2 to 15 percent slopes***

#### ***Composition***

*Zumwalt and similar soils*—65 percent

*Harlow and similar soils*—20 percent

*Contrasting inclusions*—15 percent

#### ***Setting***

*Landscape position:* Zumwalt—concave areas of summits; Harlow—convex areas of summits

*Landform:* Plateaus

*Parent material:* Zumwalt—mixed volcanic ash and loess over residuum and colluvium derived from basalt; Harlow—loess and colluvium derived from basalt

*Elevation:* 3,400 to 5,600 feet

*Native plants:* Zumwalt—Idaho fescue, bluebunch wheatgrass; Harlow—bluebunch wheatgrass, Idaho fescue, arrowleaf balsamroot, buckwheat

*Climatic factors:*

Mean annual precipitation—17 to 35 inches

Mean annual air temperature—42 to 45 degrees F

Frost-free period—70 to 100 days

#### ***Typical Profile of Zumwalt***

0 to 7 inches—black silt loam

7 to 9 inches—very dark grayish brown silt loam

9 to 21 inches—dark brown silty clay

21 to 37 inches—dark brown silty clay

37 inches—basalt

#### ***Properties and Qualities of Zumwalt***

*Depth to bedrock:* 20 to 40 inches

*Depth to claypan:* 6 to 15 inches

*Drainage class:* Well drained

*Permeability:* Moderate in the upper part and very slow in the lower part

*Available water capacity:* About 5 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High in the claypan

*Corrosivity to uncoated steel:* High

### ***Typical Profile of Harlow***

0 to 4 inches—very dark brown very stony loam

4 to 8 inches—very dark grayish brown very cobbly clay loam

8 to 16 inches—dark brown extremely cobbly clay

16 inches—basalt

### ***Properties and Qualities of Harlow***

*Depth to bedrock:* 10 to 20 inches

*Depth to clayey layers:* 8 to 16 inches

*Drainage class:* Well drained

*Permeability:* Slow

*Available water capacity:* About 1.5 inches

*Hazard of erosion:* Slight or moderate

*Shrink-swell potential:* High

### ***Contrasting Inclusions***

- Tippet soils in depressions
- Bocker soils in convex areas

### ***Major Use***

Zumwalt and Harlow—livestock grazing

### ***Major Management Limitations***

Zumwalt and Harlow—permeability, water erosion, cool winter temperatures, shrink-swell potential

Zumwalt—depth to claypan, corrosivity

Harlow—depth to bedrock, depth to clayey lower layers, very stony soil surface, available water capacity

### ***General Management Considerations***

#### **Livestock grazing**

- The upper layer is saturated following snowmelt.
- Erosion of the easily disturbed surface layer causes a change in the range site and a loss in the potential for forage production.
- A cool growing season may limit the growth and establishment of new seedlings and the choice of species for range seedings.
- Damage to the soils and plants may occur unless grazing is delayed until the soils are firm and the preferred forage plants can withstand the grazing pressure.
- The claypan in the Zumwalt soil restricts the rooting depth, and it expands when wet and contracts when dry, which can damage plant roots.
- High corrosivity of the Zumwalt soil may damage uncoated steel used in pipelines, watering facilities, and water structures.
- The bedrock in the Harlow soil restricts the rooting depth.
- The shallow depth of the Harlow soil limits the use of conventional fencing and makes special design of fences necessary.
- Depth to bedrock in the Harlow soil limits construction of water impoundments.
- The clayey lower layers in the Harlow soil restrict the rooting depth, and they expand when wet and contract when dry, which can damage plant roots.

- The very stony upper layer of the Harlow soil restricts the operation of ground seeding equipment.
- Droughtiness in the Harlow soil may limit the success of seedings and the choice of species for seedings.
- Seeding areas of the Harlow soil that are in poor condition is difficult because of the soil depth or stoniness, or both.

## Use and Management of the Soils

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This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

### Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

#### Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited*, *somewhat limited*, and *very limited*. The suitability ratings are expressed as *well suited*, *moderately suited*, *poorly suited*, and *unsuited* or as *good*, *fair*, and *poor*.

#### Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations



appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

## Crops and Pasture

By Thomas K. Smith, resource conservationist, Natural Resources Conservation Service.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed; the system of land capability classification used by the Natural Resources Conservation Service is explained; and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The survey area has a total of 928,690 acres, of which about 139,000 acres is used for crops and pasture. Nonirrigated crops are grown on about 73,000 acres, and irrigated crops are grown on about 45,000 acres.

## History

Settlers moved into Wallowa County in the early 1870's. They came from the Grande Ronde Valley in search of grazing land for horses and cattle.

Because of the harshness of the climate in the area and the remoteness of the area, settlement was slow but steady. Early homesteaders were hardly more than subsistence farmers. The kinds of crops that could be grown was limited by the short growing season, and trade was limited by the fact that everything coming into or going out of the area had to be packed by horses or carried by the homesteaders. Livestock, mainly horses and cattle, were raised and herded to markets north or west of the area.

The first road into the valley was built in 1879. It extended from the Grande Ronde Valley to near the present-day town of Elgin. Construction of a railroad from the same area was begun in 1905 and completed 4 years later. The availability of faster and easier transportation and freight service brought more settlers to the area and resulted in many changes in agriculture.

Livestock production has always been the backbone of agriculture in the county. The limited grain grown, mostly wheat, oats, and barley, was used as livestock feed and for flour for local use. After the railroad was completed, farm equipment became more readily available and more grain could be produced and harvested. As a result, the dairy industry flourished from about World War I until after World War II, in the 1950's. Almost every farm raised milk cows. The cream from the milk was sent to market, and the skim milk was used as feed for pigs. The cream was processed into butter or cheese. Much of the cream was processed at creameries in the county, but a considerable quantity was shipped by rail to Portland. As recently as the 1950's, several creameries in the county were producing high quality cheddar and Swiss cheese. By 1965, all of the creameries in the county were closed and only two commercial dairy farms remained. Whole milk was shipped out for processing for a few years, but then dairy cattle were replaced with beef cattle.

For a while in the 1920's, Wallowa County marketed more hogs than any other county in the United States. Because of the wide dispersal of farms and the geographic landforms of the county, a hog drive became a common interesting and somewhat unique event. Farmers in areas such as Promise, Paradise, Flora, and Zumwalt would get together and assemble herds of hogs ready for market and drive

them to the railroad in Wallowa and Enterprise. When the number of dairy cattle declined, the number of hogs also declined. By the 1970's, few hogs were being raised in the county.

World War II brought major changes in agriculture in the county. Many young people went to war, which created a shortage of labor. Many of them returned after the war, but many also went to college and pursued careers other than farming. Power equipment was more readily available after the war, and machinery replaced hand labor. With machinery, more crops could be produced and harvested in less time.

Grain production has grown in importance over the years. Wheat is the most commonly grown with barley next and some oats. Most of the wheat is shipped to markets in Portland. Most of the barley and oats is used as feed for livestock. Most of the grain is grown in nonirrigated areas, but several thousand acres of irrigated wheat is grown each year as part of a crop rotation or as a cleanup crop.

Other crops have been grown over the years with limited success. Production of green peas for canning or freezing was good for several years, but the cannery eventually found cheaper sources of peas. Dry peas have also been grown in rotation with wheat in nonirrigated areas. Seed potatoes were grown in the 1970's because the isolated area was beneficial. A few hundred acres still are grown each year. White Dutch clover was grown for seed in rotations in the Flora and Paradise area for many years. A few small fruit orchards are along the Imnaha River. The fruit is for local use only.

### **Present Day**

Nonirrigated cropland is used mainly for winter wheat, spring barley, spring wheat, and hay. The average yield of winter wheat is 30 to 75 bushels per acre. Winter wheat usually is planted during the period September 1 through November 1. Nitrogen and sulfur commonly are applied before planting, and additional nitrogen is applied in spring. Phosphorus is applied in areas where soil tests or field trials indicate a probable response. Weeds are controlled by tillage or herbicides, or both.

Nonirrigated barley production averages 0.75 to 1.5 tons per acre. Spring barley is planted from April 1 through May 15. Nitrogen commonly is applied before planting. Sulfur and phosphorus are applied in areas where soil tests or field trials indicate a need. Spring barley generally is planted in alternate years under a winter wheat-spring barley-fallow cropping system.

Nonirrigated alfalfa-grass hay production ranges from 1 to 2 tons per acre. Phosphorus and sulfur are applied in areas where soil tests or field trials indicate a need.

Pasture production varies widely, depending on soil characteristics and management.

Irrigated cropland is used mainly for hay, pasture, winter wheat, spring wheat, and spring barley. Sprinkler and flood irrigation systems are most common.

Irrigated alfalfa hay production averages 4 to 6 tons per acre. Stands commonly persist for 5 to 7 years. Sulfur and phosphorus commonly are applied as needed as indicated by soil tests and field trials.

The average production of grass hay is 2 to 3 tons per acre. Nitrogen commonly is applied in spring.

The average production of winter wheat is 70 to 100 bushel per acre. Yields of spring wheat average 50 to 70 bushels per acre. Nitrogen, sulfur, and phosphorus commonly are applied before planting as need is indicated by soil tests or field trials. Additional nitrogen may be applied to winter wheat in spring.

The average production of spring barley is 1.5 to 2 tons per acre. Nitrogen, sulfur, and phosphorus are applied in areas where soil tests or field trials indicate a probable response.

Irrigated seed potatoes are grown commercially in the Prairie Creek area.

### Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crop grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

### Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical

to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in table 5.

### **Prime Farmland**

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in this section. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed

to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

The map units that meet the requirements for prime farmland are:

- 21 Balm-Catherine complex, 0 to 3 percent slopes (where irrigated and drained)
- 45 Chesnimnus silt loam, 0 to 3 percent slopes (where irrigated)
- 46 Chesnimnus gravelly loam, 0 to 3 percent slopes (where irrigated)
- 47 Cheval silt loam, 0 to 2 percent slopes (where irrigated and drained)
- 50 Conley silty clay loam, 0 to 2 percent slopes (where irrigated and drained)
- 51 Conley silty clay loam, 2 to 8 percent slopes (where irrigated and drained)
- 82 Freels silt loam, 0 to 3 percent slopes (where irrigated)
- 84 Gelsinger silt loam, 2 to 8 percent slopes (where irrigated)
- 130 Hershall silt loam, 0 to 2 percent slopes (where irrigated and drained)
- 134 Hurwal silt loam, 2 to 8 percent slopes (where irrigated)
- 138 Hurwal silt loam, moist, 2 to 8 percent slopes (where irrigated)
- 147 Josset loam, 0 to 2 percent slopes (where irrigated)
- 172 Langrell gravelly loam, 0 to 3 percent slopes (where irrigated)
- 173 Langrell-Snow complex, 0 to 3 percent slopes (where irrigated)
- 199 Lostine silt loam, 0 to 3 percent slopes (where irrigated)
- 204 Matterhorn gravelly fine sandy loam, 0 to 3 percent slopes (where irrigated)
- 205 Minam loam, 2 to 8 percent slopes (where irrigated)
- 207 Minam gravelly loam, 2 to 8 percent slopes (where irrigated)
- 235 Ramo silty clay loam, 2 to 8 percent slopes (where irrigated)
- 239 Reavis silt loam, 0 to 3 percent slopes (where irrigated)
- 240 Redmount silt loam, 0 to 3 percent slopes (where irrigated)
- 241 Redmount silt loam, 3 to 8 percent slopes (where irrigated)
- 242 Redmount gravelly silt loam, 0 to 3 percent slopes (where irrigated)
- 243 Redmount-Cheval complex, 0 to 2 percent slopes (where irrigated)
- 270 Schrier silt loam, 2 to 8 percent slopes (where irrigated)
- 274 Silverlake silt loam, 0 to 3 percent slopes (where irrigated)
- 289 Snow silt loam, 0 to 3 percent slopes (where irrigated)
- 335 Topper silt loam, 2 to 8 percent slopes (where irrigated)
- 345 Veazie loam, 0 to 3 percent slopes (where irrigated and either protected from flooding or not frequently flooded during the growing season)
- 350 Watama silt loam, 2 to 8 percent slopes (where irrigated)

## **Agricultural Waste Management**

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Tables 6a and 6b show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from



the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Application of manure and food-processing waste* not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

*Application of sewage sludge* not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass,

primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

*Rapid infiltration of wastewater* is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil. The wastewater may eventually reach the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. Depth to a water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance. Permanently frozen soils are unsuitable for waste treatment.

*Slow rate treatment of wastewater* is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water may percolate to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.



## Rangeland

Alan V. Bahn, rangeland management specialist, Natural Resources Conservation Service, prepared this section.

The rangeland in the survey area is in areas ranging from the canyons of the Snake River to mid-elevation prairies, grazeable forestland of plateaus, and the high Wallowa Mountains. Approximately 60 percent of the survey area is open rangeland. The rangeland is diverse because of the different climatic regimes in the area, and it is very productive. The seasonal patterns of use by livestock and wildlife use reflect the variability of the rangeland. The canyons provide excellent forage in winter and spring, and the high plateaus, mixed forestland, and higher mountains provide excellent forage in summer. The inherent productivity of the rangeland in this area is excellent; some of the upper prairies are the most productive areas of rangeland in Oregon.

The vegetation produced on rangeland and other land types helps to control erosion, conserve water, and maintain watersheds, provides habitat for wildlife, and offers scenic and recreational value. Rangeland is an integral part of healthy watersheds. Rangeland plants protect and stabilize soils during periods of runoff. They contribute to soil structure and increase the soil water intake rate. Clean water slowly released from uplands over an extended period of time, recharged aquifers, and excellent condition riparian areas are indicators of healthy rangeland.

Historical use of the rangeland in the survey area has been extensive and varied. The Nez Perce Indians occupied the valley and used the rangeland seasonally. The Wallowa Valley, which is protected by natural boundaries, was called the "beautiful valley of winding waters" by Chief Joseph and was traditionally used for hunting and fishing in summer and fall. The canyonland was used in winter. Fire was used to stimulate plant growth and create open areas for hunting and gathering roots and berries. Until the early 1700's, horses were not a part of tribal life. When horses were introduced to the area, their numbers increased rapidly and they became an integral part of tribal movement and culture.

European settlement brought domestic livestock to the area in the late 1800's. Both cattle and sheep were part of the homestead settlements. Sheep operators once pastured large flocks. They were wintered in the canyons and gradually moved to the higher elevation prairies, forestland, and Wallowa Mountains in summer. The sheep operations of the past have for the most part been replaced by cattle operations. The total number of livestock and the impact on the rangeland were highest at the turn of the century. Current livestock numbers and management practices are more in line with the resource capabilities.

Wildlife use patterns and numbers on rangeland have varied considerably. Elk were exterminated before the turn of the century, but elk from Jackson Hole were reintroduced into Billy Meadows and other areas in 1912. The herds have increased since that time, providing opportunities for hunting and thus helping local economies. Other species such as sharp-tailed grouse have recently been reintroduced. Improved management, seedings, and water developments have all had an impact on wildlife populations. A noticeable effect was the increase in raptor populations in the Zumwalt Prairie area after construction of ponds.

### Rangeland Ecological Sites and Forestland Plant Associations

The relationship between the soils and vegetation was established during this survey. Each detailed soil map unit component has been correlated to a rangeland ecological site or a forestland plant association, which are given in table 7. A rangeland ecological site or forestland plant association is a distinctive kind of land

with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. It is the product of all environmental factors responsible for its development—soils, climate, landscape position, time, and living organisms. Each ecological site or plant association is recognized and described on the basis of the characteristics that differentiate it from other sites in its ability to produce and support a characteristic plant community.

Historic climax plant community data for each ecological site is also given in table 7. This data includes historic climax plant community species, species composition, and annual production. The historic plant community is the plant community that existed on a site at or prior to European settlement. It is a plant community that is well adapted to the unique combination of environmental factors associated with a given site.

The ecological sites and forest plant associations have been correlated to each of the general vegetation zones and are given in the table at the end of this section. The location and extent of each vegetation zone are shown on the General Vegetation Zone Map included in this publication.

### **Rangeland Plant Community Dynamics**

Primary plant succession occurs as the historical development of an ecological site takes place. Plant succession is the progressive replacement of plant communities on an ecological site that leads to a climax or characteristic plant community. Succession occurs over time and is a result of environmental factors, including natural disturbances. Retrogression is the degradation or shift away from the historic plant community and is a reflection of changes in site conditions. Commonly, site condition changes are irreversible and a different state develops. This vegetative state may be relatively stable and resistant to change, such as low-quality annual range, or it may be a high-quality range seeding.

Range similarity index is a rating used to evaluate an ecological site. It is based on the comparison of the present plant community to either the historic climax plant community or another vegetative state community. The similarity index is a percentage of a specific vegetative state plant community that is presently on the site. It provides an indication of the extent of change needed to establish the desired or historic climax plant community.

Range trend is the direction of the change on a site. The plant community may be either moving toward or away from the historic climax plant community or the desired plant community. This trend provides information needed to ensure that the direction of change will enhance the site and meet the objectives of the manager. As a monitoring guideline it can be used to evaluate the success of a prescribed grazing system and to determine needed refinements.

Rangeland health assessments provide information on the function of the ecological processes. Rangeland health is the degree to which the integrity of the soil, vegetation, water, and air as well as the ecological processes of the rangeland ecosystem are balanced and sustained. Ecological attributes are indicators of rangeland health. These attributes include soil site stability, hydrologic function, and integrity of the biotic community. Because the attributes are difficult to observe or measure in the field, indicators are used as an index of an attribute. Seventeen ecological indicators have been identified. These include water flow patterns, resistance of the soil surface to erosion, plant community composition and distribution relative to infiltration and runoff, amount of litter, annual production, invasive plants, and reproductive capability of perennial plants. The rangeland health assessment helps land managers identify areas that are potentially at risk for degradation and other potential problems.

### **Prescribed Grazing Systems**

Prescribed grazing is the management of livestock and other browsing animals to achieve specific objectives. It is based on landowner objectives, resource capabilities, and conservation needs. It is used to maintain or improve the health and vigor of selected plants; maintain a stable and desired plant community; provide food, cover, and shelter for livestock and wildlife; improve water quality and quantity; ensure a healthy sustainable soil condition; and promote economic stability.

The major considerations in planning and implementing a prescribed grazing system are limitations in site production and the sensitivity of the key species. A key species is one that serves as a guide to plant community use, health, and trend. It is a palatable species that furnishes excellent forage and at site potential makes up a high percentage of the plant community. Idaho fescue is an example of a key species on open prairies, onespike oatgrass is an example of a key species in areas of very shallow soils in the higher precipitation zones, and elk sedge is an example of a key species in areas of grazeable forestland.

The frequency of defoliation and season of grazing are based on the growth rate, physiological stage of growth, and planned response of key species. It is important to determine whether the key species has adequate vigor and stand density, whether deferment is needed to increase vigor and seed production, and the proper frequency of deferment and the effects of rotations. These are basic in determining the response time of key species.

Grazing management practices are used to achieve plant community objectives. Practices include deferment, rest, rotation, proper season of use, proper length of use, and planned use levels. The timing and length of the period of grazing, level of forage use, and use of resting or deferred grazing until after critical periods of plant growth affect plant responses. The effectiveness and acceleration of upward trends are achieved through repeated deferment and use of other high-response management practices. Desired results are achieved by applying these practices in a well-thought-out sequence and monitoring them over a period of years.

Facilitating practices are used to augment management practices. Foremost of the facilitating improvement practices are water development and cross fencing. Both of these practices help to improve rotations and livestock distribution. Accelerating practices include seeding areas in poor condition where desired perennial bunchgrasses are absent. These practices increase production and lengthen the green forage period. Weed control is imperative for optimum sustained production. In areas of grazeable forestland, thinning benefits both the forage and forest resources.

Livestock management involves many range practices. The key to proper management is a grazing system that is designed with consideration of plant and animal requirements, topography, and management objectives. Objectives are based on the maintenance or improvement of soil, water, and vegetative resources. If the management objective precludes a higher range site similarity index or site potential because of economic considerations or other considerations, resource maintenance at a sustainable level is imperative. An even or upward trend is required. The level of management should be consistent with the limitations of the vegetative site. At a minimum it should protect the soil and plant resource base, provide for water conservation, and promote improved water quality.

Wildlife extensively use areas of rangeland and forestland for food and cover. The survey area has an excellent balance of seasonal habitat. The higher lying tableland and mountains provide excellent habitat in summer, and the lower lying canyonland provides excellent habitat in winter. Forage in winter is most limited, particularly during severe winters. The shallow soils on open south-facing slopes provide critical forage during these times.

The fragile, low-elevation, south-facing slopes are the most limited wildlife use areas; therefore, they are excellent indicators of the winter range condition for game. Because the shallow soils on these slopes are subject to annual saturation late in winter and early in spring, they are particularly susceptible to sloughing and erosion in heavy use areas. Careful management is needed to maintain their inherent productivity.

Areas that support shrubs are also excellent indicators of the range condition for game. Because these areas provide food and cover for many wildlife species, the critical use areas are subject to overgrazing. Heavy use indicators include complete use of annual twig growth, presence of decadent plants, “lollypop” growth with no basal stem reproduction, lack of young shrubs, and presence of old, uniform-aged stands. Balancing wildlife numbers with the resource capabilities is critical. With the proper level of use, stands of healthy shrubs of varying ages will result.

Riparian areas provide important and diverse wildlife habitat. Perennial riparian areas are or have the potential to become dominated by shrubs. Healthy riparian areas have vigorous complex communities of shrubs, forbs, grasses, and grasslike plants. They provide a buffer during periods of high flows and a connection to the flood plain, and they contribute to the quality of good instream aquatic habitat. The potential for improvement of riparian habitat is excellent with proper management of existing riparian vegetation and with seeding and planting to adapted native and introduced species. Riparian vegetative recovery time is relatively short because of the presence of a perennial or shallow water table. In areas of severe channel alteration and degradation, longer periods of time and additional effort is required to improve riparian areas. Recovery time is dependent on the severity of the channel alteration and degradation.

### **Management Interpretations for Uses of Rangeland**

Rangeland is fragile by nature because of the limitations in climate, topography, and soil characteristics. These limitations alone or in combination can make an area unsuitable or less suitable for a particular grazing practice. Important limitations that affect grazing management are given in the section “Detailed Soil Map Units” and are described in the following paragraphs.

**Aspect.**—Aspect is the direction in which a slope faces. The soils on north-facing slopes are cooler, deeper, and more productive than are those on south-facing slopes. Depending on elevation, north-facing slopes are well suited to grazing by livestock and wildlife late in spring and in summer. South-facing slopes provide excellent range in spring, but they are poorly suited to livestock grazing in summer. South-facing slopes are very important to big game in winter because less snow accumulates on these slopes and they are the first to green up in spring. Both southeast- and west-facing slopes have vegetative site characteristics similar to those of south-facing slopes.

**Slope.**—The steepness of slope affects livestock use and the feasibility of applying improvement practices. Slopes of 30 percent or less are most preferred by livestock. Areas that have slopes of more than about 50 percent receive very little use even if forage is abundant. Limited livestock use on steep slopes normally is anticipated, and stocking rates are adjusted accordingly. Use of ground equipment is impractical on slopes of more than 30 percent.

**Effect of droughtiness or cold temperatures.**—Droughtiness in soils reduces the production of forage and limits the choice of species for reseeding. Soils are droughty as a result of low annual precipitation or low available water capacity. Soil characteristics such as coarse texture, shallow depth, or a high content of rock fragments reduce the available water capacity of a soil. Cold temperatures limit the length of the growing season for plants, suppress plant growth, and delay plant development.

**Surface stones and cobbles.**—The amount of stones and cobbles on the soil surface can influence both grazing management and the potential for revegetation. Some soils have so many stones and cobbles on the surface that livestock avoid them whenever possible. The amount of stones on the soil surface also limits the feasibility of mechanical seedbed preparation and seeding.

**Surface texture.**—Certain soil surface textures limit use. Soils that have a silty surface texture and a low content of organic matter are subject to crusting. The formation of a vesicular crust reduces infiltration and seedling emergence. Soils that have a clay surface texture have a very slow infiltration rate and very slow permeability. In a cold environment, silty and clayey soils are subject to frost heaving. Vegetation is subject to trampling and crown damage if it is grazed when the soils are wet in winter and spring.

**High water table.**—A high water table occurs seasonally or year round in some soils. Wetness in soils, even those saturated within the root zone for a brief period, impacts the composition and production of vegetation. This is readily apparent in soils that are ponded or have a high water table at or near the surface. Under these conditions, grazing can result in compaction and displacement of the soils and crown damage to plants. Wet soils are seasonally restricted for mechanical site preparation and are subject to erosion from concentrated flows. Seeding techniques need to be tailored to site conditions, and the species selected must be tolerant of seasonal wetness.

**Rock outcrop.**—Rock outcrop occurs throughout the survey area. It is most typically on steep south- and west-facing slopes. It commonly is formed from geologic faults or from exposed sedimentary and igneous rock. Areas of Rock outcrop can be several hundred feet in length and 10 to several hundred feet in height. They act as physical barriers to domestic livestock and many species of wildlife by preventing or restricting vertical movement. Some wildlife species prefer habitat associated with areas of rock outcrop. Raptors and bighorn sheep, for example, make good use of these areas.

**Loss of site potential.**—Some of the soils in the survey area have lost a significant amount of the surface layer through erosion. The loss of this layer can cause major changes in the composition of the plant community. This irreversible change in the plant community is most evident in shallow soils, where the topsoil is thin and the underlying subsoil has slow permeability and restricts root growth. Depending on the extent of the erosion, losses in total production can range from 25 to 50 percent or more.

**Restrictions to water developments.**—Livestock water developments are needed in most of the grazed areas in the survey area. Spring developments and wells can provide excellent high-quality water in a timely manner. Stock ponds are more limited in terms of quality and seasonal use. They require a careful feasibility study. To prevent a loss of water from the subsoil, stock ponds should be used only on soils that have slow permeability. Soils that are coarse grained, high in content of rock fragments, or shallow to bedrock are poorly suited to pond construction. Because adequate runoff is needed to fill stock ponds, the infrequent runoff typical of areas of low precipitation commonly precludes pond construction in these areas.

### **Ecological Sites, Plant Associations, and Characteristic Plant Communities**

In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 7 shows, for each soil that supports vegetation suitable for grazing, the ecological site or plant association; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the



average percentage of each species. An explanation of the column headings in the table follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on a site is typified by an association of species that differs from that of other sites in the kind and/or proportion of species or in total production.

*Total dry-weight production* is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

*Characteristic vegetation*—the grasses, forbs, and shrubs that make up most of the historic climax plant community on each soil—is listed by common name. Under *composition*, the expected percentage is given as dry weight for each species making up the characteristic vegetation.

Understory vegetation consists of grasses, forbs, shrubs, and other plants. The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, and the depth and condition of the litter. The density of the canopy determines the amount of light that understory plants receive.

Table 7 shows, for each soil that supports forestland vegetation, the Forest Service plant association, the characteristic vegetation, and the average percentage of each species. The characteristic vegetation is based on percent canopy cover as defined by the respective forest plant association.

A *plant association* as defined by the Forest Service is a stand of vegetation that is able to develop and persist in its environment. If the competitive forces are without major influences, then following a relatively long period of time those plants capable of reproducing in competition will constitute the "climax community." The classification based on the probable, or projected, climax community is defined as the plant association. As a combination of similar or compensating environmental factors are repeated across the landscape, a predictable plant community will occupy those sites given time and a lack of disturbance. This climax community is the basis for the plant association classification.

Plant association and plant community types are abstract classification terms. Plant communities, on the other hand, are concrete entities on the landscape, just as a stand of trees, grasses, or shrubs is recognizable and tangible to the field investigator. More information on the plant associations in the survey area is available in Plant Associations of the Blue and Ochoco Mountains (Johnson and Clausniter, 1992) and Plant Associations of the Wallowa-Snake Province (Johnson and Simon, 1987).

*Characteristic vegetation* is listed by common name. Under *composition*, the

expected percentage of the total annual production is given for each species making up the characteristic vegetation. It is based on the percent canopy cover. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Rangeland Ecological Sites and Forest Plant Associations as  
Correlated to General Vegetation Zones\*

Vegetation Zone 1.-Warm Lower Canyons

Elevation generally less than 2,800 feet; 12- to 17-inch precipitation zone

Bluebunch wheatgrass/sand dropseed plant communities typically on benches and south-facing slopes

Idaho fescue/bluebunch wheatgrass plant communities typically on north-facing slopes

<u>Site or association name</u>	<u>Site number</u>	<u>Association number</u>
LOAMY BENCH 10-15 PZ	R009XY050OR	
LOAMY SOUTH 10-15 PZ	R009XY051OR	
LOAMY NORTH 10-15 PZ	R009XY054OR	
VERY SHALLOW SOUTH 10-15 PZ	R009XY053OR	
LOAMY SHALLOW SOUTH 10-15 PZ	R009XY052OR	
SHALLOW SOUTH 14+ PZ	R009XY031OR	
SOUTH 14-17 PZ	R009XY029OR	
SHALLOW NORTH 10-15 PZ	R009XY055OR	
SHALLOW NORTH 14+ PZ	R009XY048OR	
LOW ELEVATION NORTH 14-17 PZ	R009XY042OR	
LOW ELEVATION DEEP NORTH 14-17 PZ	R009XY043OR	
FAN 10-15 PZ	R009XY003OR	

See footnote at end of table.



Rangeland Ecological Sites and Forest Plant Associations as  
Correlated to General Vegetation Zones--Continued

Vegetation Zone 2.--Upper Canyon Drainageways

Elevation generally 2,800 to 5,600 feet; 15- to 30-inch precipitation zone; rangeland and rangeland/forestland intermixed

Bluebunch wheatgrass plant communities typically on shallow south-facing slopes  
Ponderosa pine/snowberry plant communities typically on moist south-facing slopes  
Idaho fescue/snowberry plant communities typically on drier north-facing slopes  
Douglas fir/ninebark plant communities typically on moist north-facing slopes

<u>Site or association name</u>	<u>Site number</u>	<u>Association number</u>
SHALLOW SOUTH 14+ PZ	R009XY031OR	
MOUNTAIN SHALLOW SOUTH 13+ PZ	R009XY036OR	
<u>NORTH 14-17 PZ</u>	R009XY040OR	
<u>SHRUBBY NORTH 15+ PZ</u>	R009XY060OR	
SOUTH 14-17 PZ	R009XY029OR	
SOUTH 17-22 PZ	R009XY030OR	
MOUNTAIN SOUTH 17-24 PZ	R009XY035OR	
SHALLOW NORTH 14+ PZ	R009XY048OR	
NORTH 17-24 PZ	R009XY045OR	
SHRUBBY MOIST NORTH 15+ PZ	R009XY046OR	
<u>PONDEROSA PINE/COMMON SNOWBERRY</u>		CPS522
<u>DOUGLAS FIR/NINEBARK</u>		CDS711
DOUGLAS FIR/PINEGRASS		CDG121
DOUGLAS FIR/COMMON SNOWBERRY		CDS622
DOUGLAS FIR/SPIREA		CDS634
DOUGLAS FIR/OCEANSPRAY		CDS611

See footnote at end of table.

Rangeland Ecological Sites and Forest Plant Associations as  
Correlated to General Vegetation Zones--Continued

Vegetation Zone 3.--Valley Bottomland

Elevation 900 to 5,000 feet; valley flood plains, fans, outwash plains, meadows, and low terraces

Basin wildrye plant communities typically on deep loamy bottoms  
Tufted hairgrass/sedge plant communities typically in meadows  
Spruce/cottonwood plant communities typically in braided river channels  
Idaho fescue plant communities typically on low terraces

<u>Site or association name</u>	<u>Site number</u>	<u>Association number</u>
LOAMY BOTTOM	R010XY005OR	
MEADOW	R010XY004OR	
MOUNTAIN MEADOW	R010XY002OR	
FAN 14-17 PZ	R009XY004OR	
MOUNTAIN LOAMY BOTTOM	R010XY006OR	
COTTONWOOD-WILLOW-RIPARIAN	R010XY011OR	
SPRUCE-COTTONWOOD		PIEN-POTR6/ROSA
MOUNTAIN LOAMY 13-17 PZ	R009XY017OR	

Vegetation Zone 4.--Open Prairie Plateaus

Elevation 2,800 to 5,000 feet; 13- to 17-inch precipitation zone; open prairie

Idaho fescue plant communities typically on deeper prairie soils  
Bluebunch wheatgrass plant communities typically on drier south-facing slopes  
Sandberg bluegrass plant communities typically on very shallow soils

<u>Site or association name</u>	<u>Site number</u>	<u>Association number</u>
MOUNTAIN LOAMY 13-17 PZ	R009XY017OR	
MOUNTAIN VERY SHALLOW 13+ PZ	R009XY027OR	
MOUNTAIN SHALLOW SOUTH 13+ PZ	R009XY036OR	
NORTH 14-17 PZ	R009XY040OR	
VERY SHALLOW 14+ PZ	R009XY025OR	
SHALLOW CLAYEY 14-17 PZ	R009XY020OR	
MOUNTAIN SHALLOW 13+ PZ	R009XY022OR	
LOAMY 14-17 PZ	R009XY010OR	
CLAYEY 14-17 PZ	R009XY015OR	
SHALLOW SOUTH 14+ PZ	R009XY031OR	
SOUTH 14-17 PZ	R009XY029OR	
MOUNTAIN SOUTH 13-17 PZ	R009XY034OR	
SHALLOW NORTH 14+ PZ	R009XY048OR	
MOUNTAIN SWALE 13-17 PZ	R009XY005OR	
MOUNTAIN CLAYEY SWALE 13-17 PZ	R009XY008OR	

See footnote at end of table.

Rangeland Ecological Sites and Forest Plant Associations as  
Correlated to General Vegetation Zones--Continued

Vegetation Zone 5.--Forested Plateaus and Mountains/Mixed Prairie

Elevation generally 2,800 to 5,000 feet; 17- to 24-inch precipitation zone; forested and mixed prairie/forest plateaus and mountain slopes

Ponderosa pine/common snowberry plant communities typically on drier plateaus and south-facing slopes

Douglas fir/common snowberry plant communities commonly on moist plateaus

Grand fir/twinflower plant communities typically on wetter, colder plateaus

Idaho fescue plant communities typically on drier prairie soils

Bluebunch wheatgrass plant communities typically on shallow south-facing slopes

Sandberg bluegrass/onespike oatgrass plant communities typically on very shallow soils

Tufted hairgrass plant communities typically in small meadows and swales

<u>Site or association name</u>	<u>Site number</u>	<u>Association number</u>
PONDEROSA PINE/COMMON SNOWBERRY		CPS522
<u>DOUGLAS FIR/COMMON SNOWBERRY</u>		CDS622
<u>DOUGLAS FIR/NINEBARK</u>		CDS711
<u>GRAND FIR/TWINFLOWER</u>		CWF311
PONDEROSA PINE/IDAHO FESCUE		CPG112
PONDEROSA PINE/ELK SEDGE		CPG222
GRAND FIR/BLUE HUCKLEBERRY		CWS211
GRAND FIR/PINEGRASS		CWS112
GRAND FIR/ROCKY MOUNTAIN MAPLE		CWS912
GRAND FIR/ROCKY MOUNTAIN MAPLE- NINEBARK		CWS412
GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)		CWS811
GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER		CWS812
SPRUCE-COTTONWOOD		PIEN-POTR6/ROSA
MOUNTAIN (THINLEAF) ALDER- REDOSIER DOGWOOD/MESIC FORB		SW2216
<u>MOUNTAIN LOAMY 17-24 PZ</u>	R009XY018OR	
<u>MOUNTAIN VERY SHALLOW 13+ PZ</u>	R009XY022OR	
<u>MOUNTAIN SHALLOW SOUTH 13+ PZ</u>	R009XY036OR	
VERY SHALLOW 14+ PZ	R009XY025OR	
SHALLOW CLAYEY 17-22 PZ	R009XY021OR	
MOUNTAIN SHALLOW 13+ PZ	R009XY022OR	
SHALLOW SOUTH 14+ PZ	R009XY031OR	
SOUTH 17-22 PZ	R009XY030OR	
MOUNTAIN SOUTH 17-24 PZ	R009XY035OR	
SHALLOW NORTH 14+ PZ	R009XY048OR	
NORTH 17-24 PZ	R009XY045OR	
SHRUBBY NORTH 15+ PZ	R009XY060OR	
SHRUBBY MOIST NORTH 15+ PZ	R009XY046OR	
WET MOUNTAIN SWALE 17-24 PZ	R009XY008OR	
MOUNTAIN SWALE 17-24 PZ	R009XY007OR	
WET MOUNTAIN MEADOW	R010XY001OR	
MOUNTAIN MEADOW	R010XY002OR	

See footnote at end of table.

Rangeland Ecological Sites and Forest Plant Associations as  
Correlated to General Vegetation Zones--Continued

Vegetation Zone 6.--Cold Mountain Slopes

Elevation generally 5,400 to 7,000 feet; 30- to 45-inch precipitation; higher mountain slopes with cold temperatures and a wetter moisture regime

Grand fir/twinflower plant communities typically on steep moist north-facing slopes

Grand fir/subalpine fir/grouse whortleberry plant communities typically on cold north-facing slopes

Subalpine fir/grouse whortleberry plant communities typically in areas of high-elevation forests

Idaho fescue/sedge plant communities typically on ridges

Green fescue plant communities typically on high open slopes

Sedge plant communities typically in subalpine meadows

<u>Site or association name</u>	<u>Site number</u>	<u>Association number</u>
<u>GRAND FIR/TWINFLOWER</u>		CWF311
<u>SUBALPINE FIR/GROUSE HUCKLEBERRY</u>		
<u>(BLUEBERRY)</u>		CES411
<u>SUBALPINE FIR/BLUE (BIG)</u>		
<u>HUCKLEBERRY</u>		CES311
<u>SUBALPINE SLOPES</u>	R009XY075OR	
<u>HIGH RIDGE 30+ PZ</u>	R009XY070OR	
<u>SHALLOW NORTH 14+ PZ</u>	R009XY048OR	

\*Plant communities are representative of the principal historic climax plant communities in the survey area. The dominant or characteristic ecological sites and forest plant associations are underlined.

## Forestland Management and Productivity

By Russell R. Hatz, Oregon State forester, Natural Resources Conservation Service.

Wallowa County is one of the primary producers of timber in northeastern Oregon. About 25 percent of the survey area is classified as commercial forestland. About 15 percent of the commercial forestland is owned by the forest industry, 8 percent is owned by ranchers and other private parties, and 2 percent is publicly owned. Three percent of the survey area consists of areas that support dominantly ponderosa pine and can be used for wood production and livestock grazing.

Productivity of the forestland is closely related to the soil properties. Soils derived from deposits of volcanic ash have a high available water capacity and a disproportionate high amount of nutrients in the surface layer. Soils derived from loess generally are high in base saturation and have a high content of weathered minerals and nutrients. Rock fragment content, thickness of the surface layer, rooting depth, and concentrations of clay all have some influence on the available water capacity of the soil, which is critical in this survey area because precipitation in summer commonly is limited.

Soils that have volcanic ash in the upper part can create unique situations on the forestland. When the ashy soils dry out, they become extremely dusty, creating possible safety hazards if used for roads. The soils that have volcanic ash over clayey-skeletal (rocky and clayey) material can have road construction problems. Roads on these soils are very slick and sticky when wet.

Soils that have low strength, a seasonal high water table, or a high content of clay close to the surface or are saturated in spring are subject to soil displacement and puddling. Roads may need additional rock in the subgrade and surface grade for year-round use. Operation of wheeled or tracked equipment should be delayed until the soil is near or below field capacity to avoid reducing productivity. Other soil damage that may occur includes deformation of soil structure and channelization of surface water.

In the high snow zone, generally above an elevation of 6,000 feet, snow accumulation can have an effect on tree growth. Deep snow puts pressure on younger trees, causing them to lean. The trees are either permanently bent over or have alternating bent and straight sections.

Because of the highly dissected mountain terrain, vegetation on the north- and south-facing slopes can be different. This is most prominent in streamside areas. All north-facing slopes that have permanent or intermittent streams have riparian areas in or adjacent to the streams.

Four principal forest cover types are in the survey area. They are 1) interior ponderosa pine, 2) interior Douglas fir, 3) grand fir, and 4) Engelmann spruce-subalpine fir. Ponderosa pine is characteristic of forests at the lower elevations, and subalpine fir is characteristic of those at the highest elevations. Soils that have volcanic ash are capable of supporting stable grand fir or subalpine fir communities. Douglas fir and ponderosa pine are on soils that have little, if any, volcanic ash influence. Douglas fir forms long-term stable communities only in areas where there is sufficient influence of loess. It is at a competitive disadvantage with ponderosa pine in areas of soils that derived in place from bedrock or colluvial rock material and have little, if any, influence of loess.

The interior ponderosa pine cover type is primarily on low to middle elevations below and adjacent to the mixed conifer zone. The soils are moderately deep to deep and are well drained. Vegetation includes but is not limited to ponderosa pine, Douglas fir, snowberry, serviceberry, pinegrass, Idaho fescue, bluebunch wheatgrass, lupine, and yarrow.

The interior Douglas fir cover type generally is at middle to high elevations in cool, moist areas. It is associated with a wide range of soil types, landforms, and slope ranges. Vegetation includes but is not limited to Douglas fir, ponderosa pine, grand fir, lodgepole pine, Rocky Mountain maple, ninebark, snowberry, spirea, serviceberry, Oregon-grape, pinegrass, elk sedge, heartleaf arnica, and woods strawberry.

The grand fir cover type is at low to middle elevations commonly in moist areas of soils derived in volcanic ash. Vegetation includes but is not limited to grand fir, Engelmann spruce, Douglas fir, ponderosa pine, western larch, lodgepole pine, Pacific yew, Rocky Mountain maple, snowberry, queen's cup beadlily, big huckleberry, prince's pine, and rattlesnake plantain.

The Engelmann spruce-subalpine cover type is primarily at the high elevation in areas where infrequent fires, low temperatures, and high soil moisture content provide the opportunity for spruce to become established for long periods. The soils formed in volcanic ash. Vegetation includes but is not limited to Engelmann spruce, subalpine fir, western larch, lodgepole pine, grand fir, fool's huckleberry, queen's cup beadlily, twinflower, big huckleberry, grouse huckleberry, prince's pine, round-leaved violet, and pinegrass.

Because of repeated fires, the survey area once favored the establishment of interior ponderosa pine and lodgepole pine. Following a half-century of fire control, many such stands are changing to the Douglas fir and grand fir cover types. Fire control and silvicultural treatments are being used to maintain seral species in many managed stands.

The majority of the forestland in the survey area provides forage for livestock and wildlife. The amount of available forage is low in many forested areas, and the palatability of the forage ranges from low to high. Areas that support the interior ponderosa pine cover type tend to produce high-quality bunchgrass if properly managed.

Timber management can improve the distribution and production of livestock. Harvesting of timber creates open areas that can be used as transitory range. Until the replanted tree seedlings shade out the undergrowth (15 to 20 years), this range contributes significantly to forage for livestock. Transitory range can also be used to move livestock away from traditional areas of concentration, such as riparian areas, and into areas that have received little, if any, livestock use.

The forested areas in the survey area are affected by many diseases and insects that may be a problem in individual stands. Damage varies from year to year.

Dwarf mistletoe (*Arceuthobium spp.*) is one of the most destructive parasites of ponderosa pine, Douglas fir, and western larch. Laminated root rot (*Phyllosticta weirii*) is a serious disease that attacks Douglas fir. Red ring rot (*Fomes pini*) is a serious disease that attacks western larch and lodgepole pine. Other diseases also are present and may be a serious problem in individual stands at any given time.

The most serious insect problem is the western spruce budworm (*Choristoneura occidentalis*), which reduces growth dramatically by defoliating Douglas fir and true firs. The larch casebearer (*Coleophora laricella*) defoliates western larch. The mountain pine beetle (*Dendroctonus ponderosae*), western pine beetle (*Dendroctonus brevicornis*), pine engraver (*Ips pini*), and red turpentine beetle (*Dendroctonus pseudotsugae*) are the most common bark beetles that periodically kill large numbers of ponderosa pine and lodgepole pine trees and annually kill some trees. The Douglas fir tussock moth (*Hemerocampa pseudotsugata*) occasionally builds up large populations and can kill Douglas fir, grand fir, subalpine fir, and western larch.

The fir engraver (*Scolytus trails*) is a native bark beetle that primarily attacks true firs. Outbreaks occur at irregular intervals, generally following drought or defoliation that lowered the resistance of the trees. The fir engraver can cause severe mortality of trees. The fir tree borer (*Semanotus litigiosus*) attacks recently dead or dying trees, lowering the grade of the lumber.

Fomes root rot (*Fomes anosa*) and brown stringy rot (*Echinodontium tinctorium*) are examples of the many fungi that attack living white fir trees. Fire wounds are the main entry points for fungi. Young, thriving, uninjured fir trees generally are free of rots, but old overmature trees frequently are badly decayed. *Cytospora abietis* is a fungus that causes cankering and dieback of true firs. It can reach epidemic proportions in areas where the trees are predisposed to attack as a result of adverse conditions such as drought or beetle attacks. Root rot may limit the growth and potential yield of timber, and it may influence local management options.

Soil surveys are important to forestland managers as they seek ways to increase productivity. Certain soils respond better to fertilization; some are susceptible to landslides and erosion after roadbuilding and harvesting; and others require special efforts for harvesting and reforestation.

Table 8 gives, for each soil that supports forestland, ratings for a number of concerns that should be considered in forestland management. *Slight*, *moderate*, and *severe* indicate the degree of the major soil limitations. The section "Detailed Soil Map Units" gives more information for each soil that has a rating of moderate or severe. Information on each of the management concerns is given in the following paragraphs.

*Sheet and rill erosion hazard* ratings refer to the probability of excessive erosion occurring as a result of operations that expose the soil. Areas of forestland that have been exposed to fire or overgrazing are also subject to erosion. A rating of *slight* indicates that no particular erosion control measures are needed under ordinary conditions; *moderate* indicates that some erosion control measures are needed; and

*severe* indicates that extra precautions are needed to control erosion as a result of most silvicultural activities.

The ratings are determined by considering the topography, the erodibility of a soil, and the local climate. Moderate and severe ratings may indicate the need for modified road construction, special harvesting systems, and alternative site preparation techniques.

*Cut and fill erosion hazard* ratings refer to the probability that damage may occur as a result of erosion from road cuts and fills. Seeding cut and fill slopes is always recommended. A rating of *slight* indicates that no particular erosion control measures are needed under ordinary conditions; *moderate* indicates that additional erosion control measures, such as use of mulch and sediment traps, are needed under certain conditions; and *severe* indicates that additional erosion control practices are needed under most conditions.

The texture of the surface and subsurface layers and the slope angle and length contribute to the extent of cut and fill erosion. The hazard of erosion becomes more severe as the length of the cut and fill slopes increases and the erodibility of the soil increases.

*Equipment limitation* ratings refer to the suitability of wheeled or tracked ground-based equipment as determined by soil and topographic characteristics. A rating of *slight* indicates that use of equipment normally is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Steepness of slope, soil wetness, and the susceptibility of the soil to compaction are the main factors that cause equipment limitations. As the slope gradient and length increase, it becomes more difficult to use wheeled equipment. Tracked equipment must be used on the steeper slopes. Cable yarding systems must be used on the steepest slopes. Soil wetness, especially in areas of fine textured soils, can severely limit the use of equipment and make harvesting practical only during the dry period in summer.

*Soil compaction* ratings refer to the probability that damage to the soil structure will occur as a result of repeated equipment use during periods of wet or moist conditions. Compaction should always be considered during silvicultural activities. Use of designated skid trails and protection of the duff layer are advised in all areas. A rating of *slight* indicates that no other practices are needed; *moderate* indicates the potential need for extra precautions, such as use of cable yarding systems instead of ground skidding equipment or seasonal restrictions on equipment use; and *severe* indicates the need for extreme caution and possibly some restorative activities, such as ripping or discing, following post-harvest activities.

Thickness of the duff layer, content of coarse fragments, texture, and plasticity are soil characteristics that affect compaction. The ratings are for wet or moist soil. Soil compaction decreases air spaces in the soil. Air and water movement are reduced, which restricts root growth and increases the risk of surface erosion.

*Soil displacement* ratings refer to soil being gouged, scraped, or pushed from its natural position by mechanical means. It is most commonly associated with mechanical slash disposal, tractor yarding operations, and site preparation. A rating of *slight* indicates that equipment use is not restricted and that special precautions generally are not needed; *moderate* indicates that specialized equipment, such as a brush rake, is recommended; and *severe* indicates that extreme caution is advised for tractor yarding operations and in areas where mechanical methods of slash disposal and site preparation are used.



Thickness of the duff layer and surface layer, slope, content of coarse fragments, and texture are soil characteristics that affect displacement. Removing or mixing the duff layer and exposing the mineral soil is necessary for natural regeneration of many species. However, in areas where excessive soil displacement has occurred, plant recovery rates may be impaired. Prolonged exposure of bare soil may result in increased erosion and further deterioration of the areas.

*Seedling mortality* ratings refer to the probability of death of tree seedlings as a result of soil or topographic conditions. Plant competition and animal damage are not considered in the ratings. The ratings apply to healthy, dormant seedlings from good stock that are properly planted during a period of sufficient moisture. A rating of *slight* indicates that no problem is expected under normal conditions; *moderate* indicates some mortality can be expected and that extra precautions are advisable; and *severe* indicates that mortality will be high and extra precautions are essential for successful reforestation.

Soil wetness, droughtiness, and topographic conditions affect seedling mortality. Larger than normal planting stock, special site preparation, surface drainage, or reinforcement plantings may be needed.

*Windthrow hazard* ratings consider the soil characteristics that affect the development of tree roots and the ability of the soil to hold trees firmly. A rating of *slight* indicates that trees are not normally blown down by the wind; *moderate* indicates that an occasional tree may be blown down during periods when the soil is wet and winds are moderate or strong; and *severe* indicates that many trees may be blown down during periods when the soil is wet and winds are moderate or strong.

Restricted rooting depth as a result of a high water table, underlying bedrock, or an impervious layer and poor anchoring of roots due to loose soil material contribute to the risk of windthrow. A rating of moderate or severe indicates the need for care in thinning forest stands, periodic salvage of windblown trees, and an adequate road and trail system to allow for salvage operations.

*Plant competition* ratings refer to the likelihood of the invasion of undesirable plants when openings are made in the tree canopy. A rating of *slight* indicates that unwanted plants are not likely to retard the development of natural or planted seedlings; *moderate* indicates that competition will retard natural or planted reforestation; and *severe* indicates that competition can be expected to prevent natural or planted reforestation.

Favorable climate and soil characteristics contribute to plant competition problems. In many cases, the key to predicting plant competition is the quantity and proximity of seed sources of undesirable plants or the quantity of unwanted brush rootstock that will resprout after harvesting. A rating of moderate or severe indicates the need for careful and thorough site preparation and the potential need for mechanical or chemical treatment to retard growth of competing vegetation.

*Fire damage* ratings refer to the probability that a fire of moderate fireline intensity (116 to 520 Btu's/sec/ft) will have a negative impact on the characteristics of the soil. A rating of *slight* indicates that negative impacts to soil characteristics are not expected; *moderate* indicates that negative impacts, such as nonwettability or excessive erosion, may occur and extra caution is advised in planning prescribed fires; and *severe* indicates that negative impacts are likely to occur and that extreme caution is advised in planning prescribed fires.

Thickness of the duff layer, content of organic matter, and texture are soil characteristics considered in determining the ability of the soil to resist fire damage. It may be necessary to consider burning in winter, using alternative lighting techniques, monitoring fuel moisture content, yarding unmerchantable material, eliminating prescribed fires, or controlling erosion following burning.

Table 9 summarizes the productivity of common trees on a specific soil. The potential productivity is calculated by the site index, which is determined by taking height and age measurements on selected trees within stands of a given species. The procedures are given in the site index publications for ponderosa pine (Meyer, 1961), grand fir (Cochran, 1979b), Douglas fir (Cochran, 1979a), lodgepole pine (Alexander, 1967a), western larch (Schmidt, 1976), and Engelmann spruce (Alexander, 1967b). The site index applies to fully stocked, even-aged stands. The highest timber yields can be expected from map units with the highest site indexes. Site index values are converted into estimated yields at various ages by using the appropriate yield tables. Trees are listed in the order of their general occurrence as observed on the map unit.

Species preferred for wood production are those that are planted for reforestation or are allowed to regenerate naturally. Commercial value, topographic position, survival and growth potential, and natural plant community are some of the factors that can influence the choice of adapted trees for reforestation.

## Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 10 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 10 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

## Recreation

The soils of the survey area are rated in tables 11a and 11b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness,

slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 11a and 11b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

*Off-road motorcycle trails* require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability,

dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

*Golf fairways* are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

## Wildlife Habitat

By D.W. Patterson, Oregon state biologist, Natural Resources Conservation Service.

Fish and wildlife add to the quality of life in the survey area by providing opportunities for both recreation and income. The survey area is dominantly vast rangeland and wooded areas interspersed with or adjacent to both irrigated and nonirrigated areas of cropland, hay, and pasture. The diversity of landforms and land uses in the area provides food, cover, and rearing areas during different seasons of the year for a variety of game and nongame wildlife species. Limited wetland areas are in the survey area. They are primarily in meadows, near cropland, around lakes, and along waterways. These areas provide important wildlife habitat, especially for waterfowl and shore birds.

To better understand the relationship between soils and habitats, the soils in the survey area have been placed into three habitat-soil groups. Each group consists of soils that are on similar landscape positions, have similar properties, and produce or have the potential to produce similar kinds of habitat and similar habitat diversity.

### Habitat-Soil Group 1.—Cropland and Related Habitats

This group consists of about 139,000 acres and is correlated to general soil map units 1, 2, 8, 9, and 10. This group generally is in glaciofluvial areas and on stream terraces, rolling hills, and basalt plateaus. Land uses are primarily irrigated and nonirrigated wheat, hay, and pasture, which provide habitat for upland wildlife such as California valley quail, pheasant, gray partridge, rabbits, and songbirds. Areas of cropland, hay, and pasture also provide important forage for birds of prey and provide important wintering areas for elk and deer during periods of heavy snow and foraging areas for elk and deer during the dry period late in summer and in fall. These areas also provide important winter habitat for American bald eagle.

Riparian vegetation adjacent to areas of cropland, hay, and pasture provides extremely important habitat for upland wildlife and provides shade and cover that enhance fish habitat in associated streams. Runoff in winter or spring, overland irrigation return flows, and livestock contribute sediment to streams in the Wallowa Valley. Water withdrawn from the streams to irrigate cropland in this group reduces the natural streamflow from several reaches that are important to summer steelhead, spring Chinook salmon, and resident trout. Limited areas of wetland are on the cropped fields. Most wetland is associated with areas of pasture and hay or is in meadows. Many areas of wetland adjacent to areas of cropland, hay, and pasture are a result of seepage from nearby irrigation water delivery systems and irrigation tailwater.

Important management considerations for conserving and enhancing wildlife habitat associated with areas of cropland, hay, and pasture include retention of crop residue

on the soil surface in winter to provide food for wildlife and reduce the risk of soil erosion. Sediment and animal waste from eroding fields can reduce the quality of the streams by affecting the clarity and oxygen levels of the water. Trees and shrubs are needed to provide food, escape cover from predators, and protection from cold winter winds. Lack of dependable year-round drinking water commonly limits the number and diversity of wildlife species, especially in nonirrigated areas. Planting trees in areas of cropland helps to increase the presence of birds of prey by providing perches. Birds of prey feed on rodents that burrow in areas of hay and pasture.

### **Habitat-Soil Group 2.—Rangeland and Related Habitats**

This group consists of about 560,000 acres and is correlated to general soil map units 3, 4, 5, 6, 7, 12, 13, and 16. Rangeland commonly is on lava plateaus, in dissected canyons, on hills, and along stream terraces. The rangeland is used primarily for livestock grazing, wildlife habitat, and recreation.

Rangeland that dominantly supports a mixture of brush, grasses, and scattered trees provides broad areas of habitat for Rocky Mountain mule deer. The south-facing slopes and deep canyon bottoms provide critical habitat for deer and elk in winter. Canyons in the northern part of the survey area provide critical winter habitat for Rocky Mountain bighorn sheep. Isolated stands of aspen and riparian forestland provide important fawning and calving areas for deer and elk. Streamside shrubs and trees provide important habitat for a diversity of wildlife. This includes escape, feeding, perching, and nesting areas for birds and escape, feeding, and reproducing habitat for other wildlife species. Limited dependable drinking water late in summer commonly is a limitation for wildlife in the drier areas of rangeland. Habitat for fish and wildlife can be directly affected by poor road construction and livestock grazing practices. These practices can directly impact the quality of water and duration of streamflow by removing plant cover on uplands and along riparian corridors, thus increasing the risk of soil erosion and stream turbidity.

Rock outcrop provides important perching and foraging areas for birds of prey such as prairie falcon, golden eagle, bald eagle, and numerous hawks and owls. Prairie falcon and the endangered peregrine falcon also nest in areas of Rock outcrop. It also provides important habitat for rodents and reptiles.

Important management considerations for conserving and promoting the desired number and diversity of wildlife on rangeland include use of livestock grazing systems that maintain a diversity of browse, forbs, grasses, and grass-like plants both preferred and required by wildlife, especially during critical periods such as in winter and in areas used for fawning and calving. Maintaining streamside vegetation, including understory species, and using grazing practices that promote the restoration of eroded meadows and waterways are critical for wildlife and fish habitat. Prescribed burning can be used to help to maintain plant conditions that promote habitat diversity. Spring developments and watering facilities should provide nearby escape cover for wildlife and access to watering facilities for young quail and grouse.

### **Habitat-Soil Group 3.—Forestland and Related Habitats**

This group consists of about 230,000 acres and is correlated to general soil map units 14, 15, 17, 18, 19, and 20. The soils are dominantly on lava plateaus, in steeply dissected canyons, and on hills and mountains.

The dominant uses of the forestland are watershed, timber production, livestock grazing, wildlife habitat, and recreation. Important spawning tributaries to the Snake and Grande Ronde Rivers, such as the Imnaha, Joseph, Wallowa, and Lostine Rivers, originate in the watersheds in areas of forestland. Silvicultural and timber harvesting practices, as well as livestock grazing, road building, and maintenance of the areas directly impact habitat conditions for resident trout and anadromous species such as Chinook and coho salmon. Stream sedimentation resulting from soil erosion can be



minimized by maintaining or improving plant cover and accumulating litter on the soil surface. Construction of instream structures, use of irrigation water diversions, and land use practices have impacted the number of anadromous species in the river systems. The Wallowa Lake sockeye salmon and Grande Ronde Coho salmon populations have been eliminated. This habitat-soil group still provides habitats that support a diversity of fish and wildlife species. Expansive stands of mixed conifers and broadleaf trees, brush fields, and small intermountain meadows, which commonly support areas of wetland, provide diverse habitats. Important trees include Douglas fir, ponderosa pine, grand fir, larch, lodgepole pine, aspen, alder, and willow. Important shrubs include ninebark, snowberry, huckleberry, elderberry, Rocky Mountain maple, serviceberry, and rose.

Important management considerations for conserving and restoring the desired number and diversity of fish and wildlife include use of silvicultural and timber harvesting practices that promote a diversity of tree species and age classes. Of critical importance is proper design and maintenance of roads used for logging and recreational access. Land use practices should minimize the risk of soil erosion and restrict wildfire where appropriate. Controlled burning can be used to maintain open areas and earlier successional vegetation that provides food and cover for wildlife. Sustained timber harvesting or use of fire, or both, are important tools for maintaining summer habitat and fawning and calving habitat for deer and elk.

Forestland provides important habitat for other wildlife species such as songbirds and birds of prey. Songbirds and woodpeckers help to control insects that attack growing and mature trees. Snags should be retained as forage and nesting sites for birds. Important habitat areas on intermountain meadows, springs, and flood plains and streamside vegetation associated with waterways should be considered when harvesting timber and locating roads.

## Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay

minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

### **Building Site Development**

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 12a and 12b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.



*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

### **Sanitary Facilities**

Tables 13a and 13b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special

design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

*A trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the

movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

### **Construction Materials**

Tables 14a and 14b give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

*Sand* and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as

indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The numbers 0.00 to 0.07 indicate that the layer is a poor source. The numbers 0.75 to 1.00 indicate that the layer is a good source. The numbers 0.08 to 0.74 indicate the degree to which the layer is a likely source.

The soils are rated *good*, *fair*, or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

*Reclamation material* is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

## Water Management

Table 15 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Pond reservoir areas* hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

*Embankments, dikes, and levees* are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

## Engineering Index Properties

Table 16 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM, 2001; PCA 1973) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000; PCA, 1973).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified



as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

*Rock fragments* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

*Liquid limit and plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

## Physical Properties

Table 17 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller. The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 17, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $1/3$ - or  $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on



soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability* refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity ( $K_{sat}$ ). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In table 17, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

*Erosion factors* are shown in table J1a as the K factor ( $K_w$  and  $K_f$ ) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor  $K_w$*  indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

*Erosion factor  $K_f$*  indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

*Wind erodibility groups* are made up of soils that have similar properties affecting

their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

*Wind erodibility index* is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

## Chemical Properties

Table 18 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Cation-exchange capacity (CEC)* is the total amount of extractable bases that can be held by the soil, expressed in terms of centimoles per kilogram. It commonly is measured at neutral pH of 7.0 (CEC-7), but it may be measured at some other stated pH value. Soils that have a low CEC hold fewer cations and may require more frequent applications of fertilizer than those that have a high CEC. The ability to retain cations minimizes the risk of ground-water pollution.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Calcium carbonate* equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

*Gypsum* is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

*Salinity* is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

*Sodium adsorption ratio (SAR)* is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

## Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil. Table 19 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 19 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration* and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of

flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

## Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

*Potential for frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

## Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixerolls (*Argi*, meaning argillic horizonation, plus *xeroll*, the suborder of the Mollisols that has an argillic horizon).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Vitrantic* identifies the subgroup that has an influence of volcanic ash in the upper part. An example is Vitrantic Argixerolls.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, frigid Vitrantic Argixerolls.

**Series.** The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

### Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the



survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

## Akerite Series

The Akerite series consists of very deep, moderately well drained soils on toeslopes and footslopes adjacent to wet meadows on plateaus and structural benches. These soils formed in volcanic ash over colluvium derived from basalt. Slopes are 2 to 15 percent. Elevation is 3,400 to 4,500 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Akerite silt loam, 2 to 8 percent slopes, in an area of woodland about 2 miles southwest of Maxville, just south of the dirt road, or 11 miles northwest of the town of Wallowa; 1,000 feet east and 1,000 feet north of the southwest corner of sec. 20, T. 3 N., R. 42 E.

Oi—1 inch to 0; slightly decomposed needles.

A1—0 to 4 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; common coarse and fine roots; many irregular pores; slightly acid (pH 6.2); clear wavy boundary.

A2—4 to 12 inches; dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common coarse and fine roots; many very fine and fine tubular pores; slightly acid (pH 6.2); gradual wavy boundary.

Bw1—12 to 19 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many very fine and fine tubular pores; slightly acid (pH 6.2); clear wavy boundary.

Bw2—19 to 30 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium and coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few fine roots; many very fine and fine tubular pores; slightly acid (pH 6.4); clear wavy boundary.

Bw3—30 to 36 inches; dark yellowish brown (10YR 4/4) silt loam, yellowish brown (10YR 5/4) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many very fine tubular pores; common fine distinct yellowish brown (10YR 5/6) masses of iron and manganese accumulations; slightly acid (pH 6.4); gradual wavy boundary.

2Bt1—36 to 45 inches; yellowish brown (10YR 4/4) silty clay loam, pale brown (10YR 6/3) dry; moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine tubular pores; many distinct clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron and manganese accumulations; slightly acid (pH 6.4); clear wavy boundary.

2Bt2—45 to 60 inches; dark yellowish brown (10YR 3/4) silty clay loam, yellowish brown (10YR 5/4) dry; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine tubular pores; many distinct clay films on faces of peds; slightly acid (pH 6.4).

Depth to bedrock is 60 inches or more. Thickness of the volcanic ash mantle is 14

to 36 inches. Depth to the argillic horizon and redoximorphic concentrations is 25 to 40 inches. A high water table is present in spring.

The A horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay. The horizon is moderately acid or slightly acid.

The Bw horizon has value of 4 or 5 moist and 5 to 7 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam with 10 to 20 percent clay. The horizon is moderately acid or slightly acid.

The 2Bt horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. The 2Bt1 horizon is silty clay loam or silt loam with 25 to 35 percent clay, and the 2Bt2 horizon is silty clay loam or clay with 30 to 45 percent clay. The 2Bt horizon is slightly acid or neutral.

The 3C horizon, where present, has color similar to that of the 2Bt horizon. The 3C horizon is loam or clay loam with 0 to 10 percent gravel.

### ***Albee Series***

The Albee series consists of moderately deep, well drained soils on plateaus and structural benches. These soils formed in mixed loess and colluvium derived from basalt with an influence of volcanic ash in the upper part. Slopes are 2 to 15 percent. Elevation is 3,400 to 5,200 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Albee silt loam in an area of Albee-Bocker complex, 2 to 15 percent slopes, in an area of rangeland about 2 miles northeast of Paradise or 7 miles northeast of Flora; 1,380 feet north and 50 feet west of the southeast corner of sec. 33, T. 6 N., R. 45 E.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; strong fine and medium granular structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine irregular pores; 5 percent gravel; neutral (pH 7.2); gradual smooth boundary.

A2—4 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; neutral (pH 7.2); clear wavy boundary.

Bw1—14 to 25 inches; dark yellowish brown (10YR 3/4) silt loam, dark yellowish brown (10YR 4/4) dry; moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; neutral (pH 7.0); clear wavy boundary.

Bw2—25 to 34 inches; dark yellowish brown (10YR 3/4) silt loam, dark yellowish brown (10YR 4/4) dry; moderate medium and coarse angular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; neutral (pH 6.8); clear wavy boundary.

Bw3—34 to 38 inches; dark yellowish brown (10YR 3/4) silt loam, yellowish brown (10YR 5/4) dry; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; 5 percent cobbles and 5 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

2R—38 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 10 to 20 inches. The upper 7 to 14 inches is influenced by volcanic ash. The profile is slightly acid or neutral throughout. It has hue of 7.5YR or 10YR.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 15 to 25 percent clay and 0 to 5 percent gravel.



The Bw horizon has value of 3 or 4 moist and 4 to 6 dry, and it has chroma of 3 or 4 moist or dry. The upper part commonly is free of rock fragments, but the lower part is 0 to 10 percent cobbles and 0 to 15 percent gravel. The horizon is silt loam or gravelly silt loam with 15 to 25 percent clay.

### ***Almota Series***

The Almota series consists of moderately deep, well drained soils on north-facing backslopes and shoulders of canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 15 to 60 percent. Elevation is 1,500 to 2,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 49 to 51 degrees F.

Typical pedon of Almota silt loam in an area of Schrier-Almota-Rock outcrop complex, 30 to 60 percent north slopes, in an area of rangeland about 6.5 miles north of the town of Imnaha; 1,320 feet east and 1,900 feet south of the northwest corner of sec. 21, T. 2 N., R. 48 E.

A—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; few fine and common very fine tubular pores; 5 percent cobbles and 5 percent gravel; slightly alkaline (pH 7.8); gradual wavy boundary.

Bw—8 to 19 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few fine and common very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.

Bk1—19 to 29 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; common distinct discontinuous calcium carbonate filaments; strongly effervescent; 5 percent gravel; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk2—29 to 38 inches; pale brown (10YR 6/3) very gravelly loam, light gray (10YR 7/2) dry; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few very fine roots; few fine and very fine tubular pores; disseminated calcium carbonate and rock fragments completely coated with calcium carbonate; violently effervescent; 10 percent cobbles and 25 percent gravel; moderately alkaline (pH 8.3); abrupt wavy boundary.

2R—38 inches; basalt and shale; calcium carbonate in fractures.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 12 to 20 inches. Depth to soft powdery calcium carbonate is 15 to 30 inches. The particle-size control section averages 18 to 25 percent clay and 5 to 20 percent basalt rock fragments.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 10 to 20 percent clay, 0 to 5 percent cobbles, and 0 to 5 percent gravel. It is neutral or slightly alkaline.

The Bw horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam or loam with 20 to 27 percent clay. It is 0 to 5 percent cobbles and 5 to 10 percent gravel. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 4 to 7 moist and 6 to 8 dry, and it has chroma of 2 or 3 moist or dry. It is gravelly loam, very gravelly loam, cobbly silt loam, loam, or silt loam with 15 to 25 percent clay. It is 0 to 10 percent cobbles and 5 to 25 percent gravel. The horizon is moderately alkaline or strongly alkaline. It has 15 to 30 percent calcium carbonate equivalent.

## ***Analulu Series***

The Analulu series consists of moderately deep, well drained soils on mountainsides. These soils formed in colluvium and residuum derived from argillite and other metasedimentary rock with an influence of volcanic ash in the upper part. Slopes are 30 to 90 percent. Elevation is 4,000 to 6,200 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Analulu gravelly fine sandy loam in an area of Analulu-Slicklog-Rock outcrop complex, 60 to 90 percent south slopes, in an area of woodland about 6 miles south of the town of Lostine and north of Silver Creek; 700 feet south and 700 feet east of the northwest corner of sec. 14, T. 2 S., R. 43 E.

Oi—1 inch to 0; partially decomposed grass, leaves, and moss.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) gravelly fine sandy loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; few fine and many very fine irregular pores; 5 percent cobbles and 20 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

Bw—5 to 21 inches; dark yellowish brown (10YR 4/4) very gravelly loam, light yellowish brown (10YR 6/4) dry; moderate medium and coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and very fine tubular pores; 10 percent cobbles and 30 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

BC—21 to 31 inches; brown (10YR 4/3) very gravelly loam, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few coarse and fine and common very fine roots; few fine and very fine tubular pores; 10 percent cobbles and 35 percent gravel; slightly acid (pH 6.5); abrupt wavy boundary.

2R—31 inches; shale.

Depth to bedrock is 20 to 40 inches. The upper 7 to 14 inches is influenced by volcanic ash. The particle-size control section is 8 to 15 percent clay and 35 to 75 percent rock fragments.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist and 2 to 4 dry. It is gravelly fine sandy loam with 5 to 15 percent clay. It has 20 to 35 percent total rock fragment content, with 0 to 5 percent stones, 0 to 5 percent cobbles, and 20 to 35 percent gravel.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is gravelly or very gravelly loam, very cobbly silt loam, or very cobbly sandy loam with 8 to 15 percent clay. It has 30 to 50 percent total rock fragment content, with 0 to 5 percent stones, 0 to 10 percent cobbles, and 25 to 40 percent gravel. The horizon is slightly acid or moderately acid.

The BC horizon has hue of 10YR or 7.5YR, value of 4 to 7 moist and 5 to 8 dry, and chroma of 2 to 4 moist or dry. It is very gravelly, extremely gravelly, or very cobbly loam or very cobbly silt loam with 8 to 15 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 5 percent stones, 5 to 20 percent cobbles, and 30 to 55 percent gravel. The horizon is slightly acid or moderately acid.

## ***Anatone Series***

The Anatone series consists of shallow, well drained soils on hills, mountains, canyons, plateaus, and structural benches. These soils formed in loess and colluvium derived from basalt. Slopes are 0 to 90 percent. Elevation is 2,000 to 6,200 feet. The

mean annual precipitation is 15 to 35 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Anatone very stony silt loam in an area of Buford-Anatone complex, 2 to 15 percent slopes, in an area of rangeland about 3 miles east of Flora; 900 feet south and 50 feet east of the northwest corner of sec. 18, T. 5 N., R. 45 E.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) very stony silt loam, dark grayish brown (10YR 4/2) dry; strong fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine and fine irregular pores; 20 percent stones, 15 percent cobbles, and 10 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

AB—3 to 6 inches; very dark grayish brown (10YR 3/2) very cobbly silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine tubular pores; 10 percent stones, 20 percent cobbles, and 15 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

Bw—6 to 12 inches; dark brown (7.5YR 3/2) very cobbly silty clay loam, brown (7.5YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine tubular pores; 5 percent stones, 25 percent cobbles, and 15 percent gravel; slightly acid (pH 6.2); clear irregular boundary.

2R—12 inches; basalt.

Depth to bedrock is 10 to 20 inches. The profile is neutral or slightly acid.

The A and AB horizons have hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 or 4 dry, and chroma of 1 to 3 moist or dry. The AB horizon is very cobbly silt loam or very stony loam with 15 to 25 percent clay. It is 10 to 20 percent stones, 15 to 30 percent cobbles, and 10 to 25 percent gravel.

The Bw horizon has hue of 5YR, 7.5YR, or 10YR, value of 2 or 3 moist and 3 or 4 dry, and chroma of 2 or 3 moist or dry. It is very cobbly silt loam, very cobbly loam, very cobbly clay loam, or very cobbly silty clay loam with 20 to 30 percent clay. It is 5 to 10 percent stones, 20 to 30 percent cobbles, and 15 to 30 percent gravel.

## ***Balm Series***

The Balm series consists of very deep, somewhat poorly drained soils on flood plains. These soils formed in stratified mixed alluvium. Slopes are 0 to 3 percent. Elevation is 2,700 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Balm very fine sandy loam in an area of Balm-Catherine complex, 0 to 3 percent slopes, in an area of pastureland about 1 mile northeast of Lostine; 1,320 feet south and 1,320 feet east of the northwest corner of sec. 11, T. 1 S., R. 43 E.

A—0 to 3 inches; very dark gray (10YR 3/1) very fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and common very fine irregular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

AC—3 to 15 inches; very dark grayish brown (10YR 3/2) very fine sandy loam, grayish brown (10YR 5/2) dry; weak medium and coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

C1—15 to 19 inches; very dark grayish brown (2.5Y 3/2) fine sandy loam, grayish

brown (2.5Y 5/2) dry; massive; soft, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

C2—19 to 24 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; massive; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; strongly effervescent; common fine faint (2.5Y 4/3) masses of iron and manganese accumulations; moderately alkaline (pH 8.2); clear wavy boundary.

C3—24 to 27 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, light brownish gray (2.5Y 6/2) dry; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; slightly effervescent; common fine distinct (2.5Y 4/4) masses of iron and manganese accumulations; slightly alkaline (pH 7.4); abrupt wavy boundary.

2C4—27 to 61 inches; multicolored very gravelly loamy sand; single grain; loose, nonsticky and nonplastic; few very fine roots; 10 percent cobbles and 45 percent gravel; slightly alkaline (pH 7.6).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. Depth to the very gravelly and sandy substratum is 20 to 35 inches. A high water table is present in winter and spring. The soils are subject to rare periods of flooding in winter and spring. The profile is moderately alkaline to the fluctuating water table and neutral or slightly alkaline below. It is calcareous to the fluctuating water table.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is very fine sandy loam with 10 to 18 percent clay. It has 1 to 2 percent calcium carbonate equivalent.

The AC horizon has value of 4 or 5 dry and chroma of 2 or 3 moist or dry. It is silt loam or very fine sandy loam with 10 to 18 percent clay. It has 1 to 2 percent calcium carbonate equivalent.

The C horizon has hue of 2.5Y or 10YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 1 or 2 moist or dry. It is fine sandy loam, loam, or silt loam with 10 to 18 percent clay. It is 0 to 15 percent gravel. It has faint or distinct redoximorphic concentrations. It has 0 to 5 percent calcium carbonate equivalent.

The 2C horizon is very gravelly sand or very gravelly loamy sand with 0 to 5 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 10 percent cobbles and 35 to 60 percent gravel.

## ***Bittercreek Series***

The Bittercreek series consists of very deep, poorly drained soils on flood plains in narrow canyons. These soils formed in mixed alluvium with an influence of volcanic ash in the upper part. Slopes are 0 to 3 percent. Elevation is 3,100 to 3,700 feet. The mean annual precipitation is 18 to 40 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Bittercreek silt loam in an area of Bittercreek-Mippon complex, 0 to 3 percent slopes, in a meadow about 4 miles south of Lostine, along the Lostine River; 2,000 feet west and 1,320 feet south of the northeast corner of sec. 3, T. 2 S., R. 43 E.

A—0 to 11 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and common very fine irregular pores; few fine distinct brown (10YR 5/3) masses of iron and manganese accumulations and few concentrations of iron and manganese; slightly acid (pH 6.5); abrupt wavy boundary.

- AC—11 to 19 inches; dark grayish brown (10YR 4/2) very fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium and coarse subangular blocky structure parting to massive; soft, very friable, slightly sticky and nonplastic; few very fine roots; few very fine tubular pores; common medium prominent strong brown (7.5YR 4/6) masses of iron and manganese accumulations; neutral (pH 6.6); abrupt wavy boundary.
- 2C1—19 to 39 inches; dark grayish brown (2.5Y 4/2) very cobbly loamy sand, grayish brown (2.5Y 5/2) dry; single grain; loose, nonsticky and nonplastic; few fine distinct yellowish brown (10YR 5/4) redoximorphic concentrations; 25 percent cobbles and 30 percent gravel; slightly acid (pH 6.5); clear wavy boundary.
- 2C2—39 to 60 inches; multicolored extremely cobbly loamy coarse sand; single grain; loose, nonsticky and nonplastic; 30 percent cobbles and 30 percent gravel; slightly acid (pH 6.5).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon and the volcanic ash influence is 10 to 20 inches. Depth to the very cobbly and sandy substratum is 15 to 30 inches. The content of rock fragments in the lower part of the particle-size control section is 0 to 70 percent. A high water table is present in winter and spring. Rare flooding occurs in winter and spring. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry. It is silt loam with 10 to 18 percent clay.

The AC horizon has hue of 10YR or 2.5Y, value of 4 or 5 moist and 5 or 6 dry, and chroma of 2 or 3 moist or dry. It is loam, very fine sandy loam, or silt loam with 10 to 18 percent clay. It is 0 to 10 percent gravel.

The 2C horizon is very cobbly loamy sand, extremely cobbly loamy coarse sand, or loamy coarse sand with 3 to 10 percent clay. It is 0 to 30 percent cobbles and 0 to 40 percent gravel.

### ***Bluecanyon Series***

The Bluecanyon series consists of shallow, well drained soils on mountains. These soils formed in colluvium and residuum derived from argillite and other metasedimentary or metavolcanic rock. Slopes are 30 to 60 percent. Elevation is 4,000 to 6,200 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Bluecanyon very gravelly silt loam in an area of Analulu-Slicklog-Bluecanyon complex, 30 to 60 percent south slopes, in an area of rangeland about 6 miles south of Lostine; 2,300 feet south and 700 feet east of the northwest corner of sec. 11, T. 2 S., R. 43 S.

- A—0 to 5 inches; very dark brown (10YR 2/2) very gravelly silt loam, dark grayish brown (10YR 4/2) dry; moderate very fine and fine granular structure; soft, very friable, nonsticky and nonplastic; few medium and fine and many very fine roots; few fine and many very fine irregular pores; 10 percent cobbles and 35 percent gravel; slightly acid (pH 6.5); clear wavy boundary.
- AB—5 to 13 inches; very dark grayish brown (10YR 3/2) very gravelly loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine tubular pores; 5 percent cobbles and 30 percent gravel; slightly acid (pH 6.5); clear wavy boundary.
- Bw—13 to 17 inches; dark brown (10YR 3/3) very gravelly loam, brown (10YR 4/3) dry; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; common very fine



tubular pores; 10 percent cobbles and 45 percent gravel; neutral (pH 6.7); abrupt wavy boundary.

R—17 inches; fractured argillite.

Depth to bedrock is 10 to 20 inches. Thickness of the mollic epipedon is 7 to 15 inches. The particle-size control section has 10 to 18 percent clay and 45 to 75 percent rock fragments. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very gravelly silt loam with 10 to 18 percent clay. It has 35 to 55 percent total rock fragment content, with 0 to 5 percent stones, 0 to 10 percent cobbles, and 25 to 55 percent gravel.

The AB horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very gravelly silt loam or very gravelly loam with 10 to 18 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 10 percent cobbles and 30 to 50 percent gravel.

The Bw horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 3 or 4 moist or dry. It is extremely gravelly silt loam or very gravelly loam with 10 to 18 percent clay. It has 45 to 75 percent total rock fragment content, with 0 to 10 percent cobbles and 40 to 70 percent gravel.

### ***Bocker Series***

The Bocker series consists of very shallow, well drained soils on canyons, hills, plateaus, and structural benches. These soils formed in loess and colluvium derived from basalt. Slopes are 0 to 90 percent. Elevation is 3,400 to 5,800 feet. The mean annual precipitation is 13 to 35 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Bocker extremely cobbly silt loam in an area of Albee-Bocker complex, 2 to 15 percent slopes, in an area of rangeland about 2 miles northeast of Paradise; 50 feet west and 1,400 feet north of the southeast corner of sec. 33, T. 6 N., R. 45 E.

A—0 to 2 inches; very dark brown (7.5YR 2/2) extremely cobbly silt loam, brown (7.5YR 4/3) dry; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 2 percent stones, 40 percent cobbles, and 25 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

Bw—2 to 7 inches; dark brown (7.5YR 3/3) very cobbly silt loam, brown (7.5YR 4/4) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 30 percent cobbles and 20 percent gravel; neutral (pH 7.2); abrupt irregular boundary.

2R—7 inches; basalt with coatings of clay in the cracks.

Depth to bedrock is 4 to 10 inches. The particle-size control section is loam or silt loam with 18 to 27 percent clay. Total rock fragment content is 35 to 70 percent. The profile has hue of 7.5YR or 10YR throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist and 2 to 4 dry. It has 0 to 2 percent stones, 30 to 45 percent cobbles, and 15 to 30 percent gravel.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist and 2 to 4 dry. It is very gravelly loam, extremely cobbly loam, or very cobbly silt loam with 18 to 27 percent clay, 0 to 2 percent stones, 0 to 30 percent cobbles, and 20 to 45 percent gravel.

## ***Bordengulch Series***

The Bordengulch series consists of moderately deep, well drained soils on mountains. These soils formed in volcanic ash over colluvium and residuum derived from argillite. Slopes are 30 to 90 percent. Elevation is 5,400 to 6,800 feet. The mean annual precipitation is 30 to 45 inches, and the mean annual air temperature is 35 to 41 degrees F.

Typical pedon of Bordengulch silt loam in an area of Vandamine-Bordengulch complex, 30 to 60 percent north slopes, in an area of woodland about 6.5 miles south of Lostine; 2,300 feet west and 800 feet north of the southeast corner of sec. 11, T. 2 S., R. 43 E.

Oi—1 inch to 0; partially decomposed needles, grass, and twigs.

A—0 to 6 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few fine and common very fine tubular pores; 10 percent gravel; slightly acid (pH 6.3); gradual smooth boundary.

Bw1—6 to 13 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 10 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.

2Bw2b—13 to 25 inches; dark yellowish brown (10YR 4/4) very cobbly loam, light yellowish brown (10YR 6/4) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; common very fine tubular pores; 20 percent cobbles and 30 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

2BCb—25 to 35 inches; yellowish brown (10YR 5/4) extremely cobbly sandy loam, very pale brown (10YR 7/4) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; few fine tubular pores; 25 percent cobbles and 40 percent gravel; slightly acid (pH 6.5); abrupt wavy boundary.

2R—35 inches; argillite.

Depth to bedrock is 20 to 40 inches. The volcanic ash mantle is 7 to 14 inches thick. The particle-size control section is 5 to 18 percent clay and 35 to 85 percent rock fragments.

The A horizon has value of 3 or 4 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 5 to 10 percent total rock fragment content, with 0 to 5 percent stones, 0 to 5 percent cobbles, and 0 to 10 percent gravel. It is slightly acid or neutral.

The Bw1 horizon has value of 4 or 5 moist and 5 to 7 dry, and it has chroma of 3 to 6 moist or dry. It is gravelly silt loam, gravelly loam, or loam with 5 to 15 percent clay. It has 10 to 30 percent total rock fragment content, with 0 to 5 percent stones, 0 to 10 percent cobbles, and 5 to 30 percent gravel. It is slightly acid or neutral.

The 2E horizon, where present, has value of 4 to 6 moist and 5 to 7 dry, and it has chroma of 2 to 4 moist or dry. It is extremely cobbly sandy loam, extremely gravelly sandy loam, very cobbly loam, or very gravelly loam with 5 to 18 percent clay. It has 35 to 85 percent total rock fragment content, with 0 to 5 percent stones, 5 to 20 percent cobbles, and 30 to 65 percent gravel. It is strongly acid to slightly acid.

The 2Bw2b horizon has hue of 10YR or 2.5Y, value of 4 or 5 moist and 5 to 7 dry,



and chroma of 3 to 6 moist or dry. It is extremely gravelly or very gravelly sandy loam or very cobbly or very gravelly loam with 5 to 18 percent clay. It has 35 to 85 percent total rock fragment content, with 0 to 10 percent stones, 5 to 30 percent cobbles, and 30 to 70 percent gravel. It is strongly acid to slightly acid.

The 2BCb horizon has hue of 10YR or 2.5Y, value of 4 to 6 moist and 6 or 7 dry, and chroma of 3 to 6 moist or dry. It is extremely cobbly or extremely gravelly sandy loam or very gravelly loam with 5 to 15 percent clay. It has 40 to 85 percent total rock fragment content, with 0 to 5 percent stones, 10 to 25 percent cobbles, and 30 to 75 percent gravel. It is strongly acid to slightly acid.

### ***Bridgewater Series***

The Bridgewater series consists of very deep, well drained soils on flood plains and alluvial fans in canyons. These soils formed in stratified mixed alluvium. Slopes are 0 to 15 percent. Elevation is 800 to 1,000 feet. The mean annual precipitation is 12 to 14 inches, and the mean annual air temperature is 50 to 52 degrees F.

Typical pedon of Bridgewater extremely stony sandy loam, 0 to 15 percent slopes, about 9 miles southwest of Anatone, taken from a similar matching physiographic area in Asotin County Area, Oregon, adjacent to Wallowa County Area, Oregon, because of the limited acreage in this survey area; 1,200 feet south and 2,300 feet west of the northeast corner of sec. 5, T. 6 N., R. 44 E.

A1—0 to 8 inches; very dark brown (10YR 2/2) extremely stony sandy loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; few fine and common very fine irregular pores; 20 percent stones, 25 percent cobbles, and 30 percent gravel; neutral (pH 7.0); clear wavy boundary.

A2—8 to 30 inches; very dark grayish brown (10YR 3/2) extremely cobbly sandy loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; 10 percent stones, 30 percent cobbles, and 30 percent gravel; neutral (pH 7.0); clear wavy boundary.

2C—30 to 60 inches; very dark grayish brown (10YR 3/2) extremely cobbly loamy sand; single grain; loose; 10 percent stones, 30 percent cobbles, and 30 percent gravel; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. Depth to the extremely cobbly and sandy 2C horizon ranges from 20 to 40 inches. Thickness of the mollic epipedon is 20 to 40 inches. The particle-size control section averages 6 to 15 percent clay and 60 to 80 percent basalt fragments. Occasional flooding occurs in winter and spring. The profile is neutral or slightly acid throughout.

The A1 horizon has value of 3 or 4 dry and chroma of 1 or 2 moist and 2 or 3 dry. It is extremely stony sandy loam with 10 to 18 percent clay, 20 to 30 percent stones, 15 to 30 percent cobbles, and 25 to 40 percent gravel.

The A2 horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is extremely cobbly sandy loam, extremely cobbly loam, or extremely cobbly coarse sandy loam with 6 to 15 percent clay, 0 to 10 percent stones, 30 to 40 percent cobbles, and 30 to 50 percent gravel.

The 2C horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 to 3 moist or dry. It is extremely cobbly coarse sand, extremely cobbly loamy sand, or extremely cobbly sand with 0 to 5 percent clay, 0 to 10 percent stones, 30 to 45 percent cobbles, and 30 to 50 percent gravel.

## ***Btree Series***

The Btree series consists of deep, well drained soils on mountains and canyons. These soils formed in volcanic ash over colluvium and residuum derived from acidic tuff. Slopes are 15 to 90 percent. Elevation is 3,600 to 5,400 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Btree silt loam in an area of Btree-Flycreek-Anatone complex, 30 to 60 percent north slopes, in an area of woodland about 3.5 miles southwest of Enterprise, along Bookout Creek; 1,200 feet west and 700 feet north of the southeast corner of sec. 7, T. 2 S., R. 44 E.

Oi—1 inch to 0; partially decomposed twigs and needles.

A—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; few fine and very fine irregular pores; 5 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

Bw—7 to 17 inches; dark yellowish brown (10YR 4/4) loam, light yellowish brown (10YR 6/4) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 10 percent gravel; moderately acid (pH 6.0); abrupt wavy boundary.

2Eb—17 to 22 inches; brown (10YR 5/3) cobbly loam, pale brown (10YR 6/3) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 15 percent cobbles and 15 percent gravel; slightly acid (pH 6.3); clear wavy boundary.

2Btb1—22 to 31 inches; dark brown (7.5YR 4/4) very cobbly clay, brown (7.5YR 5/4) dry; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; many distinct clay films on faces of peds and in pores; 25 percent cobbles and 25 percent gravel; neutral (pH 6.7); abrupt wavy boundary.

2Btb2—31 to 42 inches; dark brown (7.5YR 3/4) very gravelly clay, brown (7.5YR 5/4) dry; strong fine subangular blocky structure; hard, firm, moderately sticky and very plastic; many distinct clay films on faces of peds and in pores; 10 percent cobbles and 45 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

2Cr—42 inches; soft tuff.

Depth to bedrock is 40 to 60 inches. Thickness of volcanic ash mantle and depth to the clayey 2Btb horizon are 14 to 20 inches. The upper part of the particle-size control section has 5 to 10 percent clay, 0 to 10 percent rock fragments, and 10 to 25 percent volcanic glass. The lower part has 35 to 50 percent clay and 35 to 65 percent rock fragments.

The A horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 5 percent gravel. It is moderately acid or slightly acid.

The Bw horizon has value of 3 or 4 moist and 6 or 7 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam, loam, or very fine sandy loam with 5 to 15 percent clay. It has 0 to 10 percent gravel. It is strongly acid or moderately acid.

The 2Eb horizon has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 to 7 dry, and chroma of 2 or 3 moist or dry. It is very gravelly, gravelly, or cobbly loam with 10 to 20 percent clay. It has 20 to 55 percent total rock fragment content, with 0 to 5 percent stones, 0 to 15 percent cobbles, and 15 to 40 percent gravel. It is moderately acid or slightly acid.

The 2Btb1 horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 3 to 5 moist and 5 to

7 dry, and chroma of 3 or 4 moist or dry. It is very gravelly or very cobbly clay loam or very gravelly or very cobbly clay with 35 to 50 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 10 percent stones, 0 to 25 percent cobbles, and 25 to 50 percent gravel. It is moderately acid to neutral.

The 2Btb2 horizon has color similar to that of the 2Btb1 horizon. The 2Btb2 horizon is very gravelly clay or very gravelly or extremely gravelly clay loam with 35 to 50 percent clay. It has 35 to 70 percent total rock fragment content, with 0 to 10 percent stones, 5 to 20 percent cobbles, and 25 to 50 percent gravel. It is moderately acid to neutral.

### ***Bucketlake Series***

The Bucketlake series consists of very deep, well drained soils on ground moraines of mountain valleys and on lateral moraines of glaciated mountainsides. These soils formed in volcanic ash over glacial till that is dominantly granitic rock. Slopes are 15 to 60 percent. Elevation is 5,400 to 6,000 feet. The mean annual precipitation is 30 to 45 inches, and the mean annual air temperature is 35 to 41 degrees F.

Typical pedon of Bucketlake silt loam, 30 to 60 percent north slopes, in a forested area about 5 miles west of Joseph, above Alder Slope near Spring Creek; 1,000 feet south and 2,500 feet west of the northeast corner of sec. 28, T. 2 S., R. 44 E.

Oi—1 inch to 0; partially decomposed moss, grass, and twigs.

A—0 to 4 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and many very fine irregular pores; 5 percent gravel; strongly acid (pH 5.4); clear smooth boundary.

Bw1—4 to 14 inches; dark yellowish brown (10YR 4/4) silt loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 5 percent gravel; moderately acid (pH 5.7); abrupt smooth boundary.

2Bw2—14 to 21 inches; dark yellowish brown (10YR 4/4) very cobbly coarse sandy loam, light yellowish brown (10YR 6/4) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few fine and common very fine roots; few fine and common irregular pores; 20 percent cobbles and 15 percent gravel; moderately acid (pH 5.8); clear wavy boundary.

2Bw3—21 to 37 inches; dark yellowish brown (10YR 4/4) very cobbly coarse sandy loam, yellowish brown (10YR 5/4) dry; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few medium and fine and common very fine roots; few fine and common very fine irregular pores; 25 percent cobbles and 20 percent gravel; slightly acid (pH 6.1); gradual wavy boundary.

2BC—37 to 62 inches; dark yellowish brown (10YR 4/4) very cobbly coarse sandy loam, light yellowish brown (10YR 6/4) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; few very fine irregular pores; 20 percent cobbles and 20 percent gravel; neutral (pH 6.6).

Depth to bedrock is 60 inches or more. Thickness of the volcanic ash mantle is 14 to 20 inches. The upper part of the particle-size control section has 5 to 15 percent clay and 5 to 35 percent rock fragments, and the lower part has 5 to 10 percent clay and 35 to 75 percent rock fragments.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 5 moist and 3 to 7 dry, and chroma of 2 to 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 3

percent stones, 0 to 3 percent cobbles, and 0 to 5 percent gravel. It is strongly acid to slightly acid.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5 moist and 5 to 8 dry, and chroma of 4 to 6 moist or dry. It is silt loam or gravelly silt loam with 5 to 15 percent clay. It has 5 to 35 percent total rock fragment content, with 0 to 5 percent boulders, 0 to 10 percent stones, 0 to 10 percent cobbles, and 5 to 20 percent gravel. It is moderately acid or slightly acid.

The 2Bw horizon has hue of 10YR or 2.5Y, value of 4 or 5 moist and 5 to 8 dry, and chroma of 4 to 6 moist or dry. It is very stony silt loam, very stony loam, very stony or extremely stony sandy loam, or very cobbly coarse sandy loam with 5 to 10 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 10 percent boulders, 0 to 20 percent stones, 10 to 25 percent cobbles, and 10 to 25 percent gravel. It is moderately acid or slightly acid.

The 2BC horizon has hue of 4 or 5 moist and 5 to 7 dry, and it has chroma of 4 to 6 moist or dry. It is very stony or extremely stony sandy loam or very cobbly coarse sandy loam with 5 to 10 percent clay. It has 40 to 75 percent total rock fragment content, with 0 to 10 percent boulders, 0 to 20 percent stones, 15 to 25 percent cobbles, and 15 to 40 percent gravel. It is slightly acid or neutral.

### ***Buford Series***

The Buford series consists of deep, well drained soils on plateaus and structural benches. These soils formed in loess with a minor influence of volcanic ash in the upper part over residuum derived from basalt. Slopes are 2 to 15 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Buford silt loam in an area of Buford-Bocker complex, 2 to 15 percent slopes, in an area of woodland about 1 mile northeast of Flora; 2,700 feet north and 100 feet west of the southeast corner of sec. 15, T. 5 N., R. 44 E.

Oi—1 inch to 0; mostly pine needles and slightly decomposed plant litter.

A1—0 to 3 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; neutral (pH 6.8); clear wavy boundary.

A2—3 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 4/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few coarse roots; many very fine and common medium tubular pores; neutral (pH 6.8); gradual wavy boundary.

AB—10 to 16 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few coarse roots; many very fine and common medium tubular pores; neutral (pH 6.8); clear wavy boundary.

Bw1—16 to 24 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few coarse roots; many very fine and common medium tubular pores; neutral (pH 6.8); gradual wavy boundary.

Bw2—24 to 36 inches; dark yellowish brown (10YR 3/4) silt loam, yellowish brown (10YR 5/4) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and few medium tubular pores; neutral (pH 6.6); gradual wavy boundary.

BC—36 to 46 inches; dark yellowish brown (10YR 4/4) loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; slightly hard,

friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; slightly acid (pH 6.4); abrupt wavy boundary.

2Bwb—46 to 50 inches; dark brown (10YR 3/3) cobbly clay, brown (10YR 4/3) dry; strong medium and coarse angular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine and fine tubular pores; common slickensides; 15 percent cobbles and 5 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

3R—50 inches; basalt.

Depth to bedrock is 40 to 60 inches. The mollic epipedon is 20 to 36 inches thick, and it includes the upper part of the Bw horizon. The particle-size control section has 18 to 27 percent clay. The profile is neutral or slightly acid throughout.

The A and AB horizons have value of 2 or 3 moist and 3 to 5 dry, and they have chroma of 2 or 3 moist or dry. They are silt loam with 18 to 27 percent clay.

The Bw1 horizon has color and texture similar to that of the AB horizon.

The Bw2 horizon has value of 3 or 4 moist and 4 to 6 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with 18 to 27 percent clay.

The BC horizon, where present, has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam or loam with 18 to 27 percent clay. It has 0 to 5 percent cobbles and 0 to 10 percent gravel.

The 2Bwb horizon, where present, has hue of 7.5YR or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is cobbly clay, clay, or silty clay with 40 to 50 percent clay. It has 0 to 15 percent cobbles and 0 to 15 percent gravel.

### ***Bunchpoint Series***

The Bunchpoint series consists of moderately deep, well drained soils on structural benches and plateaus. These soils formed in loess and residuum derived from basalt with an influence of volcanic ash in the upper part. Slopes are 0 to 15 percent. Elevation is 4,000 to 5,400 feet. The mean annual precipitation is 20 to 30 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Bunchpoint silt loam in an area of Bunchpoint-Bocker complex, 0 to 15 percent slopes, in an area of woodland about 15 miles east of Joseph, near Marr Flat; 960 feet south and 1,340 feet west of the northeast corner of sec. 22, T. 3 S., R. 47 E.

Oi—1 inch to 0; discontinuous slightly decomposed leaves and needles.

A—0 to 12 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine and very fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine, many fine, and few medium roots; few fine tubular pores; 5 percent gravel; strongly acid (pH 5.5); clear irregular boundary.

AB—12 to 24 inches; brown (10YR 4/3) silt loam, yellowish brown (10YR 5/4) dry; weak medium and fine subangular blocky structure parting to weak very fine subangular blocky; slightly hard, friable, slightly sticky and nonplastic; common fine and few medium and coarse roots; few fine tubular pores; 10 percent gravel; strongly acid (pH 5.5); clear irregular boundary.

Bw—24 to 32 inches; dark yellowish brown (10YR 4/4) gravelly silt loam, yellowish brown (10YR 5/6) dry; moderate coarse and weak medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine, medium, and coarse roots; few fine and medium tubular pores; 5 percent cobbles and 20 percent gravel; strongly acid (pH 5.5); abrupt irregular boundary.

2R—32 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 10 to 20



inches. The upper 14 to 24 inches is influenced by volcanic ash. The particle-size control section has 12 to 18 percent clay and 15 to 35 percent rock fragments. The profile has hue of 10YR or 7.5YR. It is slightly acid to strongly acid throughout.

The A horizon has value 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel and 5 to 15 percent volcanic glass.

The AB horizon has value 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam, loam, or fine sandy loam with 12 to 18 percent clay. It has 0 to 5 percent cobbles and 0 to 10 percent gravel. It has 5 to 15 percent volcanic glass.

The Bw horizon has value of 4 to 6 moist or dry, and it has chroma of 3 or 4 moist and 5 or 6 dry. It is gravelly loam, gravelly silt loam, or gravelly very fine sandy loam with 12 to 18 percent clay. It has 15 to 35 percent total rock fragment content, with 0 to 10 percent cobbles and 15 to 25 percent gravel.

### ***Catherine Series***

The Catherine series consists of very deep, somewhat poorly drained soils on flood plains. These soils formed in stratified mixed alluvium. Slopes are 0 to 3 percent. Elevation is 2,700 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Catherine silt loam in an area of Balm-Catherine complex, 0 to 3 percent slopes, in an area of pasture about 0.75 mile northeast of Lostine; 100 feet south and 100 feet east of the northwest corner of sec. 11, T. 1 S., R. 43 E.

Ap—0 to 6 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few coarse and common very fine roots; common very fine tubular pores; slightly alkaline (pH 7.8); gradual smooth boundary.

A1—6 to 14 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few fine and common very fine tubular pores; slightly alkaline (pH 7.8); clear wavy boundary.

A2—14 to 22 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; neutral (pH 7.3); abrupt wavy boundary.

AC—22 to 28 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few fine and common very fine tubular pores; common fine distinct very dark grayish brown (2.5Y 3/2) iron depletions; neutral (pH 7.2); abrupt wavy boundary.

C1—28 to 41 inches; dark grayish brown (2.5Y 4/2) silt loam, light brownish gray (2.5Y 6/2) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; many fine distinct dark yellowish brown (10YR 3/4) masses of iron accumulation; neutral (pH 7.0); gradual wavy boundary.

C2—41 to 46 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; massive; slightly hard, firm, moderately sticky and moderately plastic; few very fine tubular pores; many fine distinct dark yellowish brown (10YR 3/4) masses of iron accumulation; neutral (pH 7.2); clear wavy boundary.

2C3—46 to 60 inches; dark grayish brown (2.5Y 4/2) very gravelly loamy coarse

sand, grayish brown (2.5Y 5/2) dry; single grain; loose, nonsticky and nonplastic; 15 percent cobbles and 35 percent gravel; neutral (pH 7.2).

Depth to bedrock is 60 inches or more. Depth to the stratified very gravelly substratum is 40 to 60 inches. Thickness of the mollic epipedon is 20 to 40 inches. The particle-size control section has 18 to 35 percent clay. A high water table is present in winter and spring. Occasional flooding occurs in winter and spring. The profile is neutral or slightly alkaline.

The A and AC horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 1 or 2 moist or dry. The AC horizon has distinct or prominent redoximorphic concentrations.

The C horizon has hue of 10YR or 2.5Y, value of 3 or 4 moist and 5 or 6 dry, and chroma of 1 or 2 moist or dry. It is silt loam or silty clay loam. Lenses of volcanic ash are below a depth of 40 inches in some pedons.

The 2C horizon is stratified loamy sand to silt loam with 12 to 18 percent clay. It has 0 to 15 percent cobbles and 0 to 40 percent gravel.

### ***Chard Series***

The Chard series consists of very deep, well drained soils on outwash terraces. These soils formed in mixed loess and glaciofluvial deposits. Slopes are 15 to 30 percent. Elevation is 800 to 1,200 feet. The mean annual precipitation is 12 to 14 inches, and the mean annual air temperature is 50 to 53 degrees F.

Typical pedon of Chard very fine sandy loam, 15 to 30 percent slopes, in an area of abandoned cropland about 43 miles north of Enterprise, alongside the Snake River; 1,320 feet north and 1,760 feet west of the southeast corner of sec. 23, T. 6 N., R. 47 E.

A—0 to 8 inches; very dark grayish brown (10YR 3/2) very fine sandy loam, grayish brown (10YR 5/2) dry; weak medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine and common fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

Bw1—8 to 18 inches; very dark grayish brown (10YR 3/2) very fine sandy loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine tubular pores; moderately alkaline (pH 8.0); gradual smooth boundary.

Bw2—18 to 30 inches; dark grayish brown (10YR 4/2) silt loam, grayish brown (10YR 5/2) dry; weak medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; moderately alkaline (pH 8.2); gradual wavy boundary.

2Bk1—30 to 50 inches; brown (10YR 4/3) very fine sandy loam, pale brown (10YR 6/3) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; disseminated calcium carbonate; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.

2Bk2—50 to 68 inches; grayish brown (10YR 5/2) very fine sandy loam, light gray (10YR 7/2) dry; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; disseminated calcium carbonate; strongly effervescent; moderately alkaline (pH 8.3).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 18 inches. Depth to secondary carbonates is 20 to 44 inches.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3



dry. It is very fine sandy loam with 5 to 12 percent clay and 0 to 5 percent gravel. It is neutral or slightly alkaline.

The Bw horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, loam, or very fine sandy loam with 8 to 12 percent clay and 0 to 5 percent gravel. The horizon is slightly alkaline or moderately alkaline.

The 2Bk horizon has value of 3 to 5 moist and 4 to 7 dry, and it has chroma of 2 or 3 moist or dry. It is loam, very fine sandy loam, or sandy loam with 4 to 15 percent clay and 0 to 5 percent gravel. It is moderately alkaline or strongly alkaline. It has 5 to 10 percent calcium carbonate equivalent.

### ***Cherrycreek Series***

The Cherrycreek series consists of deep, well drained soils on canyons, plateaus, and structural benches. These soils formed in mixed volcanic ash and loess over colluvium and residuum derived from basalt (fig. 20). Slopes are 2 to 90 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 15 to 30 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Cherrycreek very cobbly silt loam in an area of Cherrycreek-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes, in an area of rangeland about 17 miles east of Enterprise, near Clear Lake Ridge; 1,920 feet north and 960 feet west of the southeast corner of sec. 27, T. 1 S., R. 47 E.

- A1—0 to 9 inches; black (10YR 2/1) very cobbly silt loam, very dark gray (10YR 3/1) dry; moderate fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine and medium irregular pores; 5 percent stones, 20 percent cobbles, and 30 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.
- A2—9 to 28 inches; very dark grayish brown (10YR 3/2) extremely cobbly silt loam, dark grayish brown (10YR 4/2) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine irregular pores; 10 percent stones, 25 percent cobbles, and 40 percent gravel; slightly acid (pH 6.5); clear wavy boundary.
- Bw1—28 to 43 inches; brown (10YR 4/3) extremely cobbly silt loam, yellowish brown (10YR 5/4) dry; weak fine and medium subangular blocky structure; soft, friable, moderately sticky and moderately plastic; common fine and few medium roots; few fine tubular pores; 15 percent stones, 25 percent cobbles, and 40 percent gravel; slightly acid (pH 6.5); clear wavy boundary.
- 2Bw2—43 to 53 inches; reddish brown (5YR 4/4) extremely cobbly silt loam, reddish brown (5YR 5/4) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; 15 percent stones, 25 percent cobbles, and 40 percent gravel; slightly acid (pH 6.5); abrupt irregular boundary.
- 2R—53 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 20 to 35 inches. The upper 35 to 50 inches is influenced by volcanic ash. The particle-size control section averages 40 to 85 percent rock fragments and 12 to 18 percent clay. The profile is slightly acid or neutral.

The A1 horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 or 2 moist or dry. It is very cobbly silt loam with 5 to 15 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 10 percent stones, 15 to 25 percent cobbles, and 20 to 30 percent gravel. It has 10 to 20 percent volcanic glass.

The A2 horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very gravelly silt loam, extremely cobbly silt loam, or extremely



**Figure 20.—Typical pedon of a Cherrycreek soil that formed in extremely cobbly and loamy colluvium with an influence of volcanic ash in the upper part. Cherrycreek soils are on plateaus, structural benches, and canyons.**

cobbly loam with 5 to 15 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 10 percent stones, 10 to 30 percent cobbles, and 25 to 50 percent gravel.

The Bw1 horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 to 4 moist or dry. It is extremely cobbly loam, extremely cobbly silt loam, or very gravelly silt loam with 5 to 15 percent clay. It has 40 to 80 percent total rock fragment content, with 5 to 15 percent stones, 10 to 30 percent cobbles, and 25 to 40 percent gravel.

The 2Bw2 horizon, where present, has hue of 10YR to 5YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is extremely cobbly silt loam, extremely cobbly loam, or very cobbly loam with 18 to 25 percent clay. It has 40 to 80 percent total rock fragment content, with 0 to 15 percent stones, 10 to 25 percent cobbles, and 30 to 40 percent gravel.

## ***Chesnimnus Series***

The Chesnimnus series consists of very deep, well drained soils on outwash plains. These soils formed in glacial outwash with an influence of loess and minor amounts of volcanic ash in the upper part. Slopes are 0 to 3 percent. Elevation is 3,600 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Chesnimnus silt loam, 0 to 3 percent slopes, in a cultivated area about 3 miles southeast of Enterprise; 1,500 feet east and 150 feet south of the northwest corner of sec. 9, T. 2 S., R. 45 E.

- Ap—0 to 7 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate thin platy structure parting to weak very fine granular; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.
- Bt—7 to 13 inches; dark brown (10YR 3/3) clay loam, brown (10YR 4/3) dry; moderate medium prismatic structure parting to weak medium subangular blocky; hard, firm, moderately sticky and moderately plastic; many fine roots; many very fine tubular pores; many distinct clay films on faces of peds; slightly alkaline (pH 7.4); clear wavy boundary.
- Bk1—13 to 26 inches; brown (10YR 4/3) clay loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; strongly effervescent with calcium carbonate segregated in common soft masses 2 to 5 millimeters in diameter; 5 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.
- Bk2—26 to 34 inches; brown (10YR 4/3) clay loam, pale brown (10YR 6/3) dry; weak thin and medium platy structure; hard, firm, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; strongly effervescent with disseminated calcium carbonate; 5 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.
- Bk3—34 to 48 inches; pale brown (10YR 6/3) loam, very pale brown (10YR 7/3) dry; massive; slightly hard, friable, nonsticky and nonplastic; few roots; many very fine tubular pores; strongly effervescent with disseminated calcium carbonate; 10 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.
- 2Bk4—48 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, very pale brown (10YR 7/3) dry; massive; soft, friable, nonsticky and nonplastic; many fine and medium irregular pores; strongly effervescent; 40 percent gravel coated with calcium carbonate; moderately alkaline (pH 8.2).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. Depth to the very gravelly horizon is 35 to 50 inches. Depth to carbonates is 10 to 23 inches.

The Ap horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam or gravelly loam with 18 to 25 percent clay. It has 0 to 25 percent gravel.

The Bt horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 3 or 4 moist or dry. It is gravelly clay loam, clay loam, or silty clay loam with 27 to 35 percent clay. It has 0 to 25 percent gravel. It is neutral or slightly alkaline.

The Bk1 and Bk2 horizons have value of 3 or 4 moist and 5 or 6 dry, and they have chroma of 3 or 4 moist or dry. They are gravelly clay loam, clay loam, or silty clay loam with 27 to 35 percent clay. They have 0 to 25 percent gravel. They have 0 to 5 percent calcium carbonate equivalent. They are neutral to moderately alkaline.

The Bk3 horizon, where present, has value of 4 to 6 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is gravelly loam, loam, or clay loam with 18 to

35 percent clay. It has 0 to 25 percent gravel. It has 10 to 15 percent calcium carbonate equivalent.

The 2Bk4 horizon has color similar to that of the Bk3 horizon. The 2Bk4 horizon is extremely gravelly or very gravelly loam, very gravelly sandy loam, or very gravelly loamy sand with 5 to 15 percent clay. It has 0 to 15 percent cobbles and 30 to 60 percent gravel. It has 25 to 30 percent calcium carbonate equivalent.

## ***Cheval Series***

The Cheval series consists of very deep, somewhat poorly drained soils on flood plains. These soils formed in mixed alluvium. Slopes are 0 to 2 percent. Elevation is 3,400 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Cheval silt loam, 0 to 2 percent slopes, in a cultivated area about 1.5 miles southeast of Enterprise; 1,550 feet east and 40 feet south of the northwest corner of sec. 13, T. 2 S., R. 44 E.

- Ap—0 to 6 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many fine roots; many irregular pores; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
- A—6 to 15 inches; very dark gray (10YR 3/1) silt loam, dark gray (10YR 4/1) dry; weak fine granular structure; soft, friable, nonsticky and nonplastic; common roots; many very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- AC—15 to 24 inches; very dark gray (10YR 3/1) loam, gray (10YR 5/1) dry; massive; soft, friable, nonsticky and nonplastic; few fine roots; many very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- C1—24 to 31 inches; dark gray (2.5Y 4/1) gravelly loam, gray (2.5Y 5/1) dry; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few irregular pores; strongly effervescent; 20 percent gravel; few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; moderately alkaline (pH 8.0); gradual irregular boundary.
- 2C2—31 to 60 inches; grayish brown (2.5Y 5/2) very gravelly loamy sand, light brownish gray (2.5Y 6/2) dry; single grain; loose, nonsticky and nonplastic; strongly effervescent; 55 percent gravel; moderately alkaline (pH 8.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. Depth to the very gravelly and sandy horizon is 20 to 36 inches. Faint redoximorphic concentrations that have hue of 10YR and chroma of 2 to 4 are at a depth of 18 to 30 inches. The profile is calcareous throughout with 1 to 2 percent calcium carbonate equivalent. The particle-size control section averages less than 18 percent clay. A high water table is present in winter and spring. Occasional flooding occurs in winter and spring.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 10 to 18 percent clay and 0 to 15 percent gravel.

The AC horizon has value of 4 or 5 dry and chroma of 1 or 2 moist or dry. It is loam, gravelly loam, or gravelly silt loam with 10 to 20 percent clay and 0 to 25 percent gravel.

The C1 horizon has hue of 2.5Y or 10YR, value of 4 or 5 moist and 5 or 6 dry, and chroma of 1 or 2 moist or dry. It is gravelly silt loam or gravelly loam with 10 to 20 percent clay and 0 to 25 percent gravel.

The 2C2 horizon is very gravelly loamy sand or very gravelly sand with 5 to 15 percent clay. It has 35 to 60 percent gravel.



## ***Clearline Series***

The Clearline series consists of deep, well drained soils in canyons. These soils formed in mixed volcanic ash, loess, and colluvium derived from basalt. Slopes are 30 to 90 percent. Elevation is 4,000 to 5,500 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Clearline gravelly silt loam in an area of Imnaha-Bocker-Clearline complex, 30 to 60 percent south slopes, in an area of rangeland about 16 miles east of Enterprise, near Downey Gulch; 1,920 feet south and 960 feet east of the northwest corner of sec. 9, T. 2 S., R. 47 E.

- A1—0 to 4 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores; 10 percent cobbles and 25 percent gravel; neutral (pH 6.7); gradual smooth boundary.
- A2—4 to 16 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores; 10 percent cobbles and 25 percent gravel; neutral (pH 7.0); gradual smooth boundary.
- AB—16 to 26 inches; dark brown (10YR 3/3) very gravelly fine sandy loam, brown (10YR 5/3) dry; weak very fine and fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; 5 percent stones, 15 percent cobbles, and 30 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bw1—26 to 36 inches; yellowish brown (10YR 5/4) very gravelly fine sandy loam, very pale brown (10YR 7/3) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine roots; few fine tubular pores; 5 percent stones, 15 percent cobbles, and 35 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.
- 2Bw2—36 to 42 inches; dark yellowish brown (10YR 4/4) very cobbly loam, light yellowish brown (10YR 6/4) dry; moderate very fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; slightly effervescent; 5 percent stones, 30 percent cobbles, and 20 percent gravel; slightly alkaline (pH 7.4); gradual smooth boundary.
- 2Bw3—42 to 55 inches; brown (10YR 4/3) very cobbly loam, light yellowish brown (10YR 6/4) dry; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine irregular pores; slightly effervescent; 5 percent stones, 20 percent cobbles, and 30 percent gravel; slightly alkaline (pH 7.8); abrupt irregular boundary.
- 2R—55 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 20 to 30 inches. Depth to the 2Bw horizon is 30 to 50 inches. The upper 40 to 50 inches is influenced by volcanic ash. The particle-size control section averages 40 to 75 percent rock fragments, 10 to 18 percent clay, and 30 to 55 percent volcanic glass.

The A1 horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is very gravelly silt loam with 5 to 10 percent clay. It has 35 to 45 percent total rock fragment content, with 0 to 10 percent cobbles and 25 to 35 percent gravel. It is slightly acid or neutral.

The A2 horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very gravelly or extremely cobbly silt loam with 5 to 10 percent clay. It has 35 to 65 percent total rock fragment content, with 0 to 10 percent stones,

5 to 35 percent cobbles, and 25 to 40 percent gravel. It has 15 to 30 percent volcanic glass. It is slightly acid or neutral.

The AB horizon, where present, is very gravelly fine sandy loam, extremely cobbly loam, or very gravelly silt loam with 5 to 15 percent clay. It has color similar to that of the A2 horizon. It has 40 to 65 percent total rock fragment content, with 0 to 10 percent stones, 10 to 35 percent cobbles, and 30 to 45 percent gravel. It has 30 to 60 percent volcanic glass.

The Bw horizon has value of 4 or 5 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is very gravelly fine sandy loam or very cobbly silt loam with 5 to 15 percent clay. It has 40 to 75 percent total rock fragment content, with 0 to 10 percent stones, 15 to 35 percent cobbles, and 25 to 35 percent gravel. It is neutral or slightly alkaline.

The 2Bw horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is very cobbly loam, extremely cobbly sandy loam, or extremely cobbly fine sandy loam with 10 to 18 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 10 percent stones, 15 to 35 percent cobbles, and 20 to 35 percent gravel. It is neutral or slightly alkaline.

### ***Cloverland Series***

The Cloverland series consists of very deep, moderately well drained soils on plateaus and structural benches. These soils formed in loess over clayey colluvium and residuum derived from basalt. Slopes are 2 to 15 percent. Elevation is 3,400 to 4,000 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Cloverland silt loam, 2 to 8 percent slopes, in an area of woodland on Grouse Flat, along the Oregon-Washington State line; 2,000 feet north and 1,200 feet west of the southeast corner of sec. 18, T. 6 N., R. 43 E.

- Oi—1 inch to 0; loose and partly decomposed pine needles and twigs.
- A1—0 to 3 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; strong very fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few coarse roots; many very fine tubular and irregular pores; slightly acid (pH 6.5); abrupt smooth boundary.
- A2—3 to 9 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few coarse roots; common very fine tubular pores; neutral (pH 6.6); clear smooth boundary.
- Bt1—9 to 19 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few coarse roots; common very fine tubular pores; few faint clay films on faces of peds; neutral (pH 6.6); gradual smooth boundary.
- Bt2—19 to 26 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium roots; common very fine tubular pores; common faint clay films on faces of peds; few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral (pH 6.6); clear smooth boundary.
- E—26 to 33 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and medium roots; common very fine tubular pores; slightly acid (pH 6.5); abrupt smooth boundary.
- Btssb1—33 to 45 inches; dark yellowish brown (10YR 3/4) silty clay, yellowish brown

(10YR 5/4) dry; strong medium and coarse angular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and medium roots; common very fine tubular pores; continuous prominent slickensides; neutral (pH 6.8); clear wavy boundary.

Btssb2—45 to 60 inches; dark yellowish brown (10YR 3/6) silty clay loam, yellowish brown (10YR 5/6) dry; strong medium and coarse angular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine tubular pores; continuous prominent slickensides; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 35 inches. Depth to the buried clayey subsoil is 25 to 40 inches. The particle-size control section has 22 to 35 percent clay. A high water table is present in winter and spring. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 15 to 25 percent clay.

The Bt horizon has value of 4 or 5 dry and chroma of 2 or 3 moist or dry. It is silt loam or silty clay loam with 22 to 35 percent clay.

The E horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 1 or 2 moist or dry.

The Btssb horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 4 to 6 moist or dry. It is clay, silty clay, or silty clay loam with 30 to 50 percent clay. The lower part of the Btssb has 0 to 10 percent cobbles and 0 to 5 percent gravel.

### ***Collegecreek Series***

The Collegecreek series consists of very deep, well drained soils on fans and toeslopes in narrow valleys. These soils formed in volcanic ash over colluvium and alluvium derived from mixed sources. Slopes are 2 to 30 percent. Elevation is 2,000 to 3,400 feet. The mean annual precipitation is 14 to 17 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Collegecreek loam in an area of Doublecreek-Phys complex, 2 to 15 percent slopes, as a named inclusion, in an area of rangeland; in sec. 15, T. 1 S., R. 48 E.

A—0 to 8 inches; dark grayish brown (10YR 4/2) loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and common fine roots; common fine irregular pores and few fine tubular pores; 5 percent gravel; neutral (pH 7.0); abrupt smooth boundary.

Bw1—8 to 24 inches; brown (10YR 5/3) loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine and very fine roots; few fine irregular and tubular pores; 5 percent gravel; slightly alkaline (pH 7.5); clear wavy boundary.

Bw2—24 to 28 inches; brown (10YR 5/3) fine sandy loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and few very fine roots; few fine tubular pores; 10 percent gravel; moderately alkaline (pH 8.0); abrupt smooth boundary.

2Ab—28 to 41 inches; dark brown (10YR 3/3) gravelly sandy loam, dark yellowish brown (10YR 4/4) dry; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 5 percent cobbles and 15 percent gravel; moderately alkaline (pH 8.0); gradual smooth boundary.

2Bwb—41 to 61 inches; dark yellowish brown (10YR 3/4) cobbly loam, dark yellowish brown (10YR 4/4) dry; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few fine roots; 5 percent cobbles and 10 percent gravel; moderately alkaline (pH 8.0).



Depth to bedrock is 60 inches or more. The upper part of the particle-size control section (0 to 28 inches) averages 0 to 10 percent rock fragments and 5 to 10 percent clay. The lower part (28 to 40 inches) averages 0 to 30 percent rock fragments and 10 to 18 percent clay. Thickness of the volcanic ash mantle is 20 to 30 inches.

The A horizon has value of 4 or 5 moist or dry and chroma of 2 or 3 moist or dry. It is loam with 8 to 15 percent clay. It has 0 to 5 percent gravel. It is slightly acid or neutral.

The Bw1 horizon has value of 5 or 6 moist or dry and chroma of 2 or 3 moist or dry. It is fine sandy loam or loam with 5 to 10 percent clay. It has 0 to 5 percent gravel. It is neutral or slightly alkaline.

The Bw2 horizon has value of 5 or 6 moist and 6 to 8 dry, and it has chroma of 2 or 3 moist and 1 to 3 dry. It is fine sandy loam or loam with 5 to 10 percent clay. It has 0 to 10 percent cobbles and 0 to 10 percent gravel. It is neutral to moderately alkaline.

The 2Ab horizon has value of 3 to 5 moist and 4 to 6 dry, and it has chroma of 2 to 4 moist or dry. It is gravelly silt loam, silt loam, fine sandy loam, or gravelly sandy loam with 10 to 15 percent clay. The total rock fragment content is 0 to 30 percent, with 0 to 20 percent cobbles and 0 to 15 percent gravel. The horizon is neutral to moderately alkaline.

The 2Bwb horizon has value of 3 to 5 moist and 4 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is cobbly loam, silt loam, or very fine sandy loam with 10 to 18 percent clay. The total rock fragment content is 0 to 30 percent, with 0 to 5 percent stones, 0 to 20 percent cobbles, and 0 to 10 percent gravel. The horizon is slightly alkaline or moderately alkaline.

## ***Conley Series***

The Conley series consists of very deep, somewhat poorly drained soils on alluvial fans and in lake basins. These soils formed in mixed alluvial and lacustrine material. Slopes are 0 to 15 percent. Elevation is 2,800 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Conley silty clay loam, 2 to 8 percent slopes, in an area of pasture about 3.5 miles southeast of Wallowa; 1,760 feet east and 600 feet north of the southwest corner of sec. 30, T. 1 N., R. 43 E.

- A—0 to 14 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium and coarse subangular blocky structure; hard, friable, moderately sticky and slightly plastic; few medium and fine and many very fine roots; few fine and common very fine tubular pores; neutral (pH 6.8); clear smooth boundary.
- E1—14 to 18 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; neutral (pH 6.8); clear wavy boundary.
- E2—18 to 23 inches; very dark grayish brown (10YR 3/2) silt loam, gray (10YR 6/1) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; neutral (pH 6.8); abrupt wavy boundary.
- 2Bt1—23 to 32 inches; very dark grayish brown (10YR 3/2) silty clay, gray (10YR 5/1) dry; moderate fine and medium prismatic structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; continuous prominent clay films on faces of peds; neutral (pH 6.8); gradual wavy boundary.
- 2Bt2—32 to 40 inches; very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; hard, firm,

moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; continuous prominent clay films on faces of peds; neutral (pH 6.8); clear wavy boundary.

3C—40 to 60 inches; dark grayish brown (10YR 4/2) gravelly silty clay loam, grayish brown (10YR 5/2) dry; massive; very hard, firm, moderately sticky and moderately plastic; few very fine tubular pores; 30 percent gravel; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. Depth to the clayey argillic horizon is 15 to 30 inches. A high water table is present in winter and spring.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is silty clay loam with 27 to 35 percent clay.

The E horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam or silty clay loam with 18 to 30 percent clay. Faint redoximorphic concentrations are in some pedons.

The 2Bt horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is clay or silty clay with 40 to 50 percent clay. It has faint or distinct redoximorphic concentrations and few to many dark coatings on faces of peds in some pedons. It is neutral or slightly alkaline.

The 3C horizon, where present, has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is silty clay loam or gravelly silty clay loam with 27 to 35 percent clay. It has 0 to 10 percent cobbles and 0 to 35 percent gravel. It is neutral or slightly alkaline.

## ***Copperfield Series***

The Copperfield series consists of very deep, well drained soils in canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 30 to 90 percent. Elevation is 800 to 2,800 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Copperfield very cobbly silt loam in an area of Copperfield-Thiessen complex, 30 to 60 percent north slopes, in an area of rangeland about 2 miles northeast of Troy; 1,400 feet south and 600 feet east of the northwest corner of sec. 35, T. 6 N., R. 43 E.

A1—0 to 4 inches; black (10YR 2/1) very cobbly silt loam, very dark grayish brown (10YR 3/2) dry; moderate very fine and fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and few fine roots; many very fine and common fine irregular pores; 5 percent stones, 20 percent cobbles, and 20 percent gravel; neutral (pH 6.8); clear wavy boundary.

A2—4 to 22 inches; very dark brown (10YR 2/2) very cobbly silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine and few medium tubular pores; 25 percent cobbles and 15 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

Bw1—22 to 30 inches; very dark grayish brown (10YR 3/2) very gravelly silty clay loam, grayish brown (10YR 5/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; many very fine and few fine tubular pores; 15 percent cobbles and 25 percent gravel; neutral (pH 7.0); gradual wavy boundary.

Bw2—30 to 42 inches; very dark grayish brown (10YR 3/2) very gravelly silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine and few fine tubular pores; 15 percent cobbles and 30 percent gravel; neutral (pH 7.0); clear wavy boundary.

2Bt—42 to 60 inches; dark brown (10YR 3/3) extremely cobbly silty clay loam, brown (10YR 5/3) dry; moderate fine and medium angular blocky structure; hard, firm, slightly sticky and slightly plastic; many very fine and few fine tubular pores; few faint clay films on faces of peds and in pores; 35 percent cobbles and 30 percent gravel; neutral (pH 7.2).

Depth to bedrock is 60 inches or more. The particle-size control section averages 25 to 35 percent clay and 40 to 70 percent rock fragments. Thickness of the mollic epipedon and depth to the argillic horizon are 40 to 50 inches.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. The A1 horizon is very cobbly silt loam with 10 to 18 percent clay, and the A2 horizon is very cobbly or very gravelly silt loam with 18 to 27 percent clay. The A horizon has 0 to 10 percent stones, 10 to 25 percent cobbles, and 15 to 40 percent gravel.

The Bw horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very gravelly or very cobbly silty clay loam or very cobbly or very gravelly clay loam with 27 to 35 percent clay. It has 0 to 10 percent stones, 15 to 40 percent cobbles, and 20 to 30 percent gravel. It is slightly acid or neutral.

The 2Bt horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is extremely cobbly silty clay loam, extremely cobbly clay, or extremely cobbly silty clay with 35 to 50 percent clay. It has 0 to 5 percent stones, 35 to 50 percent cobbles, and 20 to 30 percent gravel. It is slightly acid or neutral.

## ***Cowsly Series***

The Cowsly series consists of deep, moderately well drained soils on plateaus and structural benches. These soils formed in loess with a minor influence of volcanic ash over fine-textured colluvium and residuum derived from basalt. Slopes are 2 to 30 percent. Elevation is 2,800 to 4,500 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Cowsly silt loam, 2 to 8 percent slopes, in an area of pasture about 6 miles south of Flora, on Day Ridge; 50 feet south and 1,400 feet west of the northeast corner of sec. 13, T. 4 N., R. 43 E.

Ap1—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; neutral (pH 7.0); clear wavy boundary.

Ap2—3 to 10 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine tubular pores; slightly acid (pH 6.4); clear wavy boundary.

A—10 to 20 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; neutral (pH 6.6); clear wavy boundary.

E—20 to 23 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine tubular pores; neutral (pH 6.8); abrupt wavy boundary.

2Bt1—23 to 30 inches; dark brown (10YR 3/3) clay, brown (10YR 4/3) dry; moderate coarse prismatic structure parting to moderate medium angular blocky; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; common very fine and fine tubular pores; common faint clay films on faces of peds and in pores; neutral (pH 7.0); gradual wavy boundary.

2Bt2—30 to 41 inches; dark brown (10YR 3/3) clay, brown (10YR 5/3) dry; moderate medium and coarse angular blocky structure; very hard, very firm, moderately sticky and moderately plastic; common very fine tubular pores; many distinct clay films on faces of peds; neutral (pH 7.2); clear wavy boundary.

2Btk—41 to 50 inches; dark yellowish brown (10YR 3/4) clay, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine tubular pores; common faint clay films on faces of peds and in pores; few medium irregularly shaped soft masses of calcium carbonate; 10 percent gravel; slightly alkaline (pH 7.8); abrupt wavy boundary.

2R—50 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 15 to 25 inches. Depth to the clayey subsoil ranges from 17 to 30 inches, but it commonly is 20 to 25 inches. A high water table is present in spring.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 to 3 moist or dry. It is silt loam, stony silt loam, or cobbly silt loam with 18 to 27 percent clay. It has 0 to 10 percent stones, 0 to 15 percent cobbles, and 0 to 15 percent gravel. It is slightly acid or neutral.

The E horizon has value of 4 or 5 moist and 6 or 7 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 18 to 27 percent clay. It is 0.5 to 6.0 inches thick. It is slightly acid or neutral.

The 2Bt horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 4 to 6 dry, and chroma of 2 to 4 moist or dry. It is clay or silty clay with 40 to 50 percent clay. The lower part of the 2Bt horizon has 0 to 10 percent cobbles and 0 to 15 percent gravel. In some pedons, the horizon has few blotches of segregated calcium carbonate. The horizon is neutral or slightly alkaline.

## ***Crawfish Series***

The Crawfish series consists of very shallow, well drained soils on mountains. These soils formed in colluvium and residuum derived from basalt. Slopes are 2 to 15 percent. Elevation is 5,800 to 6,400 feet. The mean annual precipitation is 30 to 45 inches, and the mean annual air temperature is 35 to 41 degrees F.

Typical pedon of Crawfish very cobbly loam in an area of Troutmeadows-Crawfish complex, 2 to 15 percent slopes, in an area of rangeland about 12 miles southeast of Joseph; 1,300 feet west and 1,100 feet north of the southeast corner of sec. 10, T. 4 S., R. 46 E.

A—0 to 3 inches; dark brown (7.5YR 3/4) very cobbly loam, brown (7.5YR 5/4) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and common very fine irregular pores; 30 percent cobbles and 10 percent gravel; moderately acid (pH 5.8); clear wavy boundary.

Bw—3 to 9 inches; dark brown (7.5YR 3/4) extremely cobbly loam, brown (7.5YR 5/4) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and very fine tubular pores; 30 percent cobbles and 30 percent gravel; moderately acid (pH 5.9); abrupt wavy boundary.

2R—9 inches; basalt.

Depth to bedrock is 4 to 10 inches. The particle-size control section averages 10 to 18 percent clay and 60 to 80 percent rock fragments.

The A horizon has hue of 7.5YR or 10YR, value of 4 to 6 dry, and chroma of 2 to 4 moist or dry. It is very cobbly loam with 10 to 15 percent clay. It has 60 to 75 percent

total rock fragment content, with 0 to 5 percent stones, 25 to 35 percent cobbles, and 10 to 20 percent gravel.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 2 to 4 moist and 4 to 6 dry. It is extremely cobbly loam, extremely gravelly loam, or extremely cobbly silt loam with 15 to 20 percent clay. It has 60 to 80 percent total rock fragment content, with 0 to 5 percent stones, 25 to 50 percent cobbles, and 30 to 55 percent gravel.

### ***Demasters Series***

The Demasters series consists of deep, well drained soils in canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 30 to 70 percent. Elevation is 3,000 to 4,500 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Demasters silt loam in an area of Snell-Harlow-Demasters complex, 60 to 90 percent slopes, about 8 miles southeast of Anatone; taken from a similar matching physiographic area in Asotin County Area, Oregon, adjacent to Wallowa County Area, Oregon, because of the limited acreage in this survey area; 1,100 feet south and 1,200 feet west of the northeast corner of sec. 12, T. 6 N., R. 46 E.

- A1—0 to 9 inches; black (10YR 2/1) silt loam, black (10YR 2/1) dry; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine and fine tubular pores; 5 percent gravel; neutral (pH 6.7); clear wavy boundary.
- A2—9 to 16 inches; black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine and fine tubular pores; 10 percent gravel; neutral (pH 6.7); clear wavy boundary.
- A3—16 to 24 inches; very dark brown (10YR 2/2) silt loam, very dark grayish brown (10YR 3/2) dry; weak coarse prismatic structure and moderate medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and fine tubular pores; 10 percent gravel; neutral (pH 6.8); clear wavy boundary.
- BA1—24 to 33 inches; very dark grayish brown (10YR 3/2) cobbly loam, dark brown (10YR 3/3) dry; moderate medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium roots; common very fine tubular pores; common faint stress cutans and clay films on faces of peds; 10 percent cobbles and 10 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bt—33 to 44 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; common faint stress cutans and clay films on faces of peds; 25 percent cobbles and 20 percent gravel; neutral (pH 7.1); abrupt wavy boundary.
- 3R—44 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 30 to 40 inches. The profile is moderately acid to neutral throughout.

The A horizon has value of 1 or 2 moist and 2 to 4 dry, and it has chroma of 1 or 2 moist or dry. The A2 and A3 horizons are silt loam or loam with 15 to 20 percent clay. The A1 and A2 horizons have 0 to 5 percent cobbles and 0 to 10 percent gravel.

The BA1 horizon, where present, has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 2 or 3 moist. It is cobbly loam, clay loam, gravelly silty clay loam,



cobbly clay loam, or gravelly loam with 22 to 30 percent clay. It has 5 to 15 percent cobbles and 5 to 15 percent gravel.

The Bt horizon has value of 4 or 5 dry. It is very cobbly loam, very cobbly clay loam, or very gravelly loam with 22 to 30 percent clay. It has 15 to 25 percent cobbles and 15 to 35 percent gravel.

### ***Dixiejett Series***

The Dixiejett series consists of deep, well drained soils in canyons. These soils formed in colluvium and residuum derived from basalt. Slopes are 30 to 90 percent. Elevation is 2,800 to 4,000 feet. The mean annual precipitation is 13 to 20 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Dixiejett gravelly loam in an area of Dixiejett-Licksillet-Rockly complex, 30 to 60 percent south slopes, in an area of rangeland about 21 miles east of Joseph, along the Imnaha River; 1,320 feet east and 400 feet north of the southwest corner of sec. 27, T. 3 S., R. 48 E.

- A1—0 to 6 inches; very dark grayish brown (10YR 3/2) gravelly loam, brown (10YR 5/3) dry; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores; 5 percent cobbles and 25 percent gravel; neutral (pH 6.6); clear smooth boundary.
- A2—6 to 10 inches; very dark grayish brown (10YR 3/2) very gravelly loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine irregular pores; 5 percent cobbles and 30 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bt1—10 to 18 inches; dark brown (10YR 3/3) very gravelly loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; many distinct clay films on faces of peds; 10 percent cobbles and 40 percent gravel; neutral (pH 7.0); gradual smooth boundary.
- Bt2—18 to 27 inches; brown (10YR 4/3) very gravelly clay loam, yellowish brown (10YR 5/4) dry; weak fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine roots; few fine tubular pores; common faint clay films on faces of peds; 10 percent cobbles and 45 percent gravel; neutral (pH 7.0); gradual smooth boundary.
- BC—27 to 43 inches; dark yellowish brown (10YR 4/4) extremely gravelly loam, yellowish brown (10YR 5/4) dry; weak very fine subangular blocky structure; hard, friable, moderately sticky and slightly plastic; 5 percent stones, 10 percent cobbles, and 50 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
- R—43 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 10 to 20 inches. Depth to the argillic horizon is 8 to 12 inches. The particle-size control section has 18 to 35 percent clay and 45 to 75 percent rock fragments.

The A1 horizon has value 2 or 3 moist and 4 to 6 dry, and it has chroma of 2 or 3 moist or dry. It is gravelly loam with 10 to 25 percent clay. It has 25 to 35 percent total rock fragment content, with 0 to 5 percent stones, 0 to 5 percent cobbles, and 15 to 25 percent gravel. It is neutral or slightly alkaline.

The A2 horizon has color similar to that of the A1 horizon. The A2 horizon is very gravelly or extremely gravelly loam with 10 to 25 percent clay. It has 35 to 70 percent total rock fragment content, with 0 to 5 percent stones, 5 to 15 percent cobbles, and 30 to 50 percent gravel. It is neutral or slightly alkaline.

The Bt horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 3 or 4

moist or dry. It is very gravelly clay loam or very gravelly or extremely gravelly loam with 25 to 35 percent clay. It has 45 to 75 percent total rock fragment content, with 0 to 15 percent stones, 10 to 20 percent cobbles, and 35 to 50 percent gravel. It is neutral to moderately alkaline.

The BC horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 4 or 5 moist or dry. It is very gravelly or extremely gravelly loam or very gravelly clay loam with 20 to 30 percent clay. It has 35 to 80 percent total rock fragment content, with 5 to 15 percent stones, 10 to 25 percent cobbles, and 20 to 50 percent gravel. It is neutral to moderately alkaline.

### ***Doublecreek Series***

The Doublecreek series consists of very deep, well drained soils in canyons and on structural benches. These soils formed in mixed loess and colluvium derived from basalt. Slopes are 2 to 60 percent. Elevation is 1,700 to 4,000 feet. The mean annual precipitation is 14 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Doublecreek silt loam in an area of Lickskillet-Doublecreek-Rockly complex, 15 to 30 percent south slopes, in an area of forage crops about 24 miles east of Enterprise, along the Imnaha River; 1,920 feet south and 960 feet east of the northwest corner of sec. 35, T. 1 S., R. 48 E.

- A1—0 to 4 inches; black (10YR 2/1) silt loam, very dark brown (10YR 2/2) dry; moderate fine granular structure and moderate very fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores and few fine tubular pores; slightly acid (pH 6.5); gradual smooth boundary.
- A2—4 to 10 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and fine roots; common fine irregular pores and few fine tubular pores; 5 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.
- AB—10 to 16 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 4/3) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine and medium tubular pores; 5 percent gravel; slightly acid (pH 6.5); clear smooth boundary.
- Bw1—16 to 22 inches; dark brown (10YR 3/3) cobbly loam, brown (10YR 5/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; 10 percent cobbles and 5 percent gravel; neutral (pH 7.0); gradual smooth boundary.
- Bw2—22 to 40 inches; brown (10YR 4/3) cobbly fine sandy loam, yellowish brown (10YR 5/4) dry; weak fine subangular blocky structure; hard, friable, nonsticky and nonplastic; common fine roots; few fine tubular pores; 10 percent cobbles and 5 percent gravel; neutral (pH 7.0); gradual smooth boundary.
- C—40 to 61 inches; brown (10YR 4/3) cobbly fine sandy loam, yellowish brown (10YR 5/4) dry; massive; hard, friable, slightly sticky and slightly plastic; few fine roots; 5 percent stones, 10 percent cobbles, and 10 percent gravel; slightly alkaline (pH 7.5).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. The particle-size control section averages 10 to 18 percent clay.

The A1 horizon has value of 2 or 3 moist and 2 to 4 dry, and it has chroma of 1 or



2 moist and 2 or 3 dry. It is silt loam with 7 to 12 percent clay. It has 0 to 5 percent gravel. It is slightly acid to slightly alkaline.

The A2 horizon and the AB horizon, where present, have value of 2 or 3 moist and 4 to 5 dry, and they have chroma of 2 or 3 moist or dry. They are silt loam or loam with 7 to 12 percent clay. They have 0 to 5 percent gravel. They are slightly acid to slightly alkaline.

The Bw horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist and 3 or 4 dry. It is cobbly fine sandy loam, sandy loam, silt loam, cobbly loam, or loam with 10 to 18 percent clay. It has 0 to 10 percent cobbles and 0 to 10 percent gravel. It is neutral or slightly alkaline.

The C horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is cobbly fine sandy loam, sandy loam, or silt loam. It has 0 to 5 percent stones, 0 to 15 percent cobbles, and 0 to 15 percent gravel. It is neutral to moderately alkaline.

### ***Downards Series***

The Downards series consists of deep and very deep, well drained soils in canyons and on hills and mountains. These soils formed in volcanic ash and colluvium derived from basalt. Slopes are 15 to 90 percent. Elevation is 2,000 to 4,000 feet. The mean annual precipitation is 20 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Downards cobbly loam in an area of Downards-Anatone-Rock outcrop complex, 60 to 90 percent north slopes, in an area of woodland about 0.2 mile east of Rondowa or 8 miles northwest of Minam; 1,800 feet east and 2,000 feet south of the northwest corner of sec. 23, T. 3 N., R. 40 E.

Oi—1 inch to 0; partially decomposed needles, twigs, moss, and cones.

A—0 to 3 inches; very dark brown (10YR 2/2) cobbly loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; common fine and many very fine irregular pores; 10 percent cobbles and 5 percent gravel; neutral (pH 6.7); clear smooth boundary.

BA—3 to 12 inches; very dark grayish brown (10YR 3/2) gravelly loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and many very fine roots; common fine and many very fine tubular pores; 10 percent cobbles and 20 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bw1—12 to 20 inches; dark brown (10YR 3/3) very cobbly clay loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and common very fine roots; common fine and many very fine tubular pores; 15 percent cobbles and 25 percent gravel; neutral (pH 6.8); gradual wavy boundary.

Bw2—20 to 61 inches; dark brown (7.5YR 3/2) very cobbly clay loam, brown (7.5YR 5/2) dry; moderate medium and coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 40 percent cobbles and 15 percent gravel; neutral (pH 6.7).

Depth to bedrock is 40 to 60 inches on south-facing slopes and 60 inches or more on north-facing slopes. Thickness of the mollic epipedon is 20 to 30 inches. The upper 7 to 14 inches is influenced by volcanic ash. The particle-size control section averages 18 to 27 percent clay and 35 to 60 percent rock fragments.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3

moist or dry. It is cobbly loam with 15 to 25 percent clay. It has 10 to 20 percent cobbles and 5 to 15 percent gravel.

The BA horizon has chroma of 2 or 3 moist or dry. It is cobbly or very cobbly loam or gravelly clay loam with 20 to 27 percent clay. It has 10 to 20 percent cobbles and 5 to 20 percent gravel.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 2 or 3 moist or dry. It is very cobbly loam, very cobbly clay loam, extremely cobbly clay loam, or very gravelly clay loam with 25 to 35 percent clay. The upper part of the horizon has 10 to 25 percent cobbles and 25 to 35 percent gravel, and the lower part has 0 to 15 percent stones, 25 to 40 percent cobbles, and 15 to 30 percent gravel.

### ***Downeygulch Series***

The Downeygulch series consists of moderately deep, well drained soils on plateaus. These soils formed in mixed volcanic ash, loess, and colluvium derived from basalt. Slopes are 0 to 30 percent. Elevation is 3,400 to 5,800 feet. The mean annual precipitation is 20 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Downeygulch gravelly silt loam in an area of Downeygulch-Lowerbluff complex, 0 to 15 percent slopes, in an area of woodland about 14 miles east of Joseph, near Marr Flat; 1,580 feet south and 1,580 feet west of the northeast corner of sec. 21, T. 3 S., R. 47 E.

A—0 to 3 inches; brown (7.5YR 4/2) gravelly silt loam, brown (7.5YR 5/4) dry; weak fine subangular blocky structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores; 20 percent gravel; slightly acid (pH 6.5); clear smooth boundary.

Bw1—3 to 13 inches; brown (7.5YR 4/4) gravelly silt loam, brown (7.5YR 5/4) dry; moderate medium subangular blocky structure parting to moderate fine and very fine subangular blocky; soft, friable, slightly sticky and slightly plastic; few very fine and medium and common fine roots; few fine tubular pores; 20 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.

Bw2—13 to 24 inches; strong brown (7.5YR 4/6) gravelly silt loam, strong brown (7.5YR 5/6) dry; weak very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few fine and medium roots; few fine irregular pores; 5 percent cobbles and 15 percent gravel; slightly acid (pH 6.5); abrupt irregular boundary.

2R—24 inches; basalt.

Depth to bedrock is 20 to 40 inches. The particle-size control section averages 5 to 30 percent rock fragments and 12 to 18 percent clay. The profile is influenced by volcanic ash to a depth of 20 to 40 inches. The profile has hue of 10YR, 7.5YR, or 5YR.

The A horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 to 4 moist or dry. It is gravelly silt loam with 12 to 18 percent clay. It has 15 to 25 percent gravel. It has 10 to 20 percent volcanic glass. The horizon is slightly acid to strongly acid.

The Bw horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 to 6 moist or dry. It is gravelly silt loam, silt loam, or loam with 12 to 18 percent clay. It has 0 to 35 percent total rock fragment content, with 0 to 10 percent cobbles and 5 to 30 percent gravel. It has 5 to 10 percent volcanic glass. The horizon is neutral to strongly acid.

## ***Eastpine Series***

The Eastpine series consists of moderately deep, well drained soils on mountains. These soils formed in colluvium and residuum derived from metasedimentary rock with an influence of volcanic ash in the upper part. Slopes are 30 to 90 percent. Elevation is 3,800 to 5,800 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Eastpine very cobbly loam in an area of Slicklog-Eastpine-Rock outcrop complex, 60 to 90 percent north slopes, in an area of woodland about 6 miles south of Lostine; 2,600 feet north and 660 feet east of the southwest corner of sec. 11, T. 2 S., R. 43 E.

Oi—1 inch to 0; slightly decomposed leaves, moss, and twigs.

A—0 to 14 inches; very dark brown (10YR 2/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; moderate very fine and fine granular structure; soft, friable, slightly sticky and slightly plastic; common fine and many very fine roots; few fine and common very fine irregular pores; 15 percent cobbles and 20 percent gravel; slightly acid (pH 6.5); gradual wavy boundary.

Bw1—14 to 26 inches; brown (10YR 4/3) very gravelly sandy loam, yellowish brown (10YR 5/4) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine tubular pores; 15 percent cobbles and 30 percent gravel; neutral (pH 6.6); clear wavy boundary.

Bw2—26 to 38 inches; brown (10YR 4/3) very cobbly sandy loam, yellowish brown (10YR 5/4) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few very fine tubular pores; 30 percent cobbles and 20 percent gravel; neutral (pH 6.6); abrupt irregular boundary.

R—38 inches; metasedimentary rock.

Depth to bedrock is 20 to 40 inches. The upper 7 to 14 inches is influenced by volcanic ash. The particle-size control section has 10 to 18 percent clay and 55 to 80 percent rock fragments.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is very cobbly loam with 5 to 15 percent clay. It has 35 to 55 percent total rock fragment content, with 0 to 10 percent stones, 15 to 25 percent cobbles, and 15 to 25 percent gravel. It is slightly acid or neutral.

The Bw horizon has hue of 10YR, 7.5YR, or 5YR, value of 4 or 5 moist and 4 to 6 dry, and chroma of 3 or 4 moist and 4 to 6 dry. It is very cobbly, extremely cobbly, or very gravelly sandy loam or extremely gravelly, extremely cobbly, or extremely stony loam with 10 to 18 percent clay. It has 55 to 80 percent total rock fragment content, with 0 to 25 percent stones, 15 to 35 percent cobbles, and 20 to 40 percent gravel. It is moderately acid to neutral.

## ***Eggleson Series***

The Eggleson series consists of very deep, moderately well drained soils on flood plains. These soils formed in mixed alluvium. Slopes are 0 to 2 percent. Elevation is 3,400 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Eggleson gravelly loam, 0 to 2 percent slopes, in an area of pasture about 1 mile south of Enterprise; 1,400 feet north and 1,200 feet west of the southeast corner of sec. 2, T. 2 S., R. 44 E.

A—0 to 3 inches; very dark brown (10YR 2/2) gravelly loam, very dark grayish brown (10YR 3/2) dry; strong fine granular structure; soft, friable, nonsticky and

nonplastic; many very fine roots; many very fine irregular pores; 20 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

AC—3 to 10 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) dry; weak very fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine irregular pores; 15 percent cobbles and 40 percent gravel; neutral (pH 6.6); clear wavy boundary.

C1—10 to 17 inches; very dark grayish brown (10YR 3/2) extremely gravelly loamy sand, dark grayish brown (10YR 4/2) dry; single grain; loose, nonsticky and nonplastic; common very fine roots; many very fine irregular pores; 20 percent cobbles and 50 percent gravel; neutral (pH 7.0); gradual wavy boundary.

C2—17 to 30 inches; multicolored extremely gravelly sand; single grain; loose, nonsticky and nonplastic; few fine roots in the upper part; 20 percent cobbles and 50 percent gravel; slightly alkaline (pH 7.4); gradual wavy boundary.

C3—30 to 60 inches; multicolored extremely gravelly sand; single grain; loose, nonsticky and nonplastic; 20 percent cobbles and 50 percent gravel; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation and redoximorphic concentrations; slightly alkaline (pH 7.4).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 15 inches. The organic matter content of the mixed upper 10 inches is estimated to be more than 1 percent, and it decreases irregularly as depth increases. A high water table is present in spring. Rare flooding occurs in spring. The particle-size control section has less than 5 percent clay, more than 50 percent fine sand or coarser, and more than 60 percent rock fragments.

The A and AC horizons have value of 2 or 3 moist and 3 to 5 dry, and they have chroma of 1 or 2 moist or dry. The A horizon is gravelly loam with 10 to 15 percent clay. It has 0 to 3 percent cobbles and 15 to 30 percent gravel. The AC horizon is very gravelly sandy loam with 5 to 10 percent clay. It has 0 to 15 percent cobbles and 35 to 55 percent gravel. The A horizon is slightly acid or neutral.

The C1 horizon has value of 3 or 4 moist and 4 to 6 dry, and it has chroma of 1 to 3 moist or dry. The C2 and C3 horizons are multicolored. Redoximorphic concentrations are few or common, fine or medium, and faint or distinct in the lower part of the C horizon and within a depth of 30 to 40 inches. The C horizon is extremely gravelly loamy sand and extremely gravelly sand with 0 to 5 percent clay. It has 0 to 10 percent stones, 20 to 30 percent cobbles, and 40 to 50 percent gravel. It is neutral and slightly alkaline.

## ***Emily Series***

The Emily series consists of very deep, well drained soils on fault block mountains and in canyons. These soils formed in colluvium derived from basalt and mixed with volcanic ash and loess in the upper part. Slopes are 15 to 60 percent. Elevation is 2,000 to 3,400 feet. The mean annual precipitation is 15 to 24 inches, and the mean annual air temperature is 45 to 48 degrees F.

Typical pedon of Emily cobbly silt loam in an area of Emily-Wolot complex, 15 to 30 percent slopes, in an area of woodland about 8 miles northwest of Minam, at the junction of the Grande Ronde and Wallowa Rivers; 2,000 feet east and 200 feet south of the northwest corner of sec. 23, T. 3 N., R. 40 E.

Oi—1 inch to 0; slightly decomposed twigs and needles.

A—0 to 5 inches; very dark brown (10YR 2/2) cobbly silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and many very fine roots; many very fine

irregular pores; 15 percent cobbles and 15 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

Bw1—5 to 14 inches; dark brown (10YR 3/3) very cobbly clay loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and common very fine roots; common fine and very fine tubular pores; 20 percent cobbles and 20 percent gravel; neutral (pH 6.6.); abrupt wavy boundary.

Bw2—14 to 33 inches; dark brown (10YR 3/3) very gravelly clay loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; few fine and common very fine tubular pores; 15 percent cobbles and 35 percent gravel; neutral (pH 6.6); gradual wavy boundary.

Bw3—33 to 60 inches; dark brown (10YR 3/3) very cobbly clay loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; few fine and very fine tubular pores; 25 percent cobbles and 30 percent gravel; neutral (pH 6.6).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 36 inches. The upper 7 to 14 inches is influenced by volcanic ash.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is cobbly silt loam with 15 to 25 percent clay. It has 10 to 20 percent cobbles and 5 to 15 percent gravel.

The Bw1 and Bw2 horizons have value of 3 or 4 moist and 4 or 5 dry, and they have chroma of 2 or 3 moist and 2 to 4 dry. They are very cobbly loam, very gravelly clay loam, very cobbly clay loam, or very cobbly silty clay loam with 25 to 35 percent clay. They have 15 to 25 percent cobbles and 20 to 35 percent gravel.

The Bw3 horizon has color similar to that of the Bw1 and Bw2 horizons. The Bw3 horizon is very cobbly loam, very gravelly loam, or very cobbly clay loam with 20 to 30 percent clay. It has 0 to 5 percent stones, 20 to 35 percent cobbles, and 15 to 45 percent gravel.

## ***Endoaquents***

Endoaquents consists of very deep, somewhat poorly drained or poorly drained soils on flood plains of narrow to intermediate valleys of basalt plateaus and mountains. These soils formed in recent alluvium derived from basalt and other volcanic rock. Slopes are 0 to 5 percent. Elevation is 3,300 to 5,000 feet. The mean annual precipitation is 20 to 35 inches, and the mean annual air temperature is 40 to 45 degrees F.

Reference pedon of Endoaquents in an area of Hapludolls-Endoaquolls-Endoaquents complex, 0 to 5 percent slopes, in an area of woodland about 24 miles north of Enterprise, along Peavine Creek; 2,000 feet south and 50 feet west of the northeast corner of sec. 17, T. 3 N., R. 46 E.

A—0 to 8 inches; dark reddish brown (5YR 2.5/2) gravelly loam, dark reddish gray (5YR 4/2) dry; weak very fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few medium roots; few very fine tubular pores; 5 percent cobbles and 25 percent gravel; neutral (pH 7.2); clear wavy boundary.

C1—8 to 15 inches; dark reddish brown (5YR 3/2) very gravelly loam, brown (7.5YR 4/3) dry; massive; soft, friable, slightly sticky and slightly plastic; few fine and medium roots; few very fine tubular pores; 5 percent cobbles and 30 percent gravel; continuous gray (N 7/0) redoximorphic features; neutral (pH 7.2); clear wavy boundary.

C2—15 to 61 inches; dark reddish brown (5YR 3/2) extremely cobbly loamy sand,



dark reddish gray (5YR 4/2) dry; single grain; loose, nonsticky and nonplastic; few fine and medium roots; common very fine irregular pores; 10 percent stones, 25 percent cobbles, and 35 percent gravel; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. A high water table is present in spring and summer. Occasional flooding occurs in spring. The particle-size control section has 5 to 20 percent clay and 25 to 85 percent rock fragments.

The A horizon has hue of 5YR or 7.5YR moist and 5YR to 10YR dry, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist and 2 to 4 dry. It is extremely gravelly, very gravelly, or gravelly loam with 5 to 15 percent clay. It has 0 to 75 percent total rock fragment content, with 0 to 20 percent cobbles and 10 to 65 percent gravel. It is slightly acid to slightly alkaline.

The C horizon has hue of 5YR or 7.5YR moist and 7.5YR or 10YR dry, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist and 2 to 4 dry. It is very gravelly or extremely cobbly silt loam, very gravelly or very cobbly loam, gravelly or extremely gravelly sandy loam, or very gravelly or extremely cobbly loamy sand with 5 to 20 percent clay. It has 15 to 85 percent total rock fragment content, with 0 to 20 percent stones, 0 to 35 percent cobbles, and 15 to 75 percent gravel. The upper part is slightly acid to slightly alkaline, and the lower part is slightly acid or neutral.

## ***Endoaquepts***

Endoaquepts consists of very deep, dominantly very poorly drained soils on fans in concave areas downslope of springs or in drainageways. These soils formed in mixed alluvium with an influence of loess and minor amounts of volcanic ash in the upper part. Slopes are 2 to 15 percent. Elevation is 3,750 to 4,800 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Reference pedon of Endoaquepts in an area of Minam-Endoaquepts complex, 2 to 8 percent slopes, in a brushy area about 2.5 miles southwest of Enterprise, on Alder Slope; 2,600 feet west and 1,100 feet north of the southeast corner of sec. 9, T. 2 S., R. 44 E.

- A1—0 to 5 inches; very dark gray (10YR 3/1) mucky silt loam, gray (10YR 5/1) dry; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and many very fine irregular pores; 10 percent gravel; neutral (pH 6.8); clear smooth boundary.
- A2—5 to 21 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 10 percent gravel; neutral (pH 6.6); gradual smooth boundary.
- E—21 to 42 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few fine and common very fine tubular pores; neutral (pH 6.6); clear wavy boundary.
- Bw1—42 to 56 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; hard, firm, moderately sticky and slightly plastic; few very fine roots; few very fine tubular pores; 10 percent gravel; many fine distinct dark yellowish brown (10YR 4/4) redoximorphic concentrations; neutral (pH 6.8); clear wavy boundary.
- Bw2—56 to 62 inches; dark grayish brown (2.5Y 4/2) gravelly clay loam, grayish brown (2.5Y 5/2) dry; moderate medium and coarse subangular blocky structure;

hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; 15 percent gravel; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. A high water table is present in spring and summer. Thickness of the mollic epipedon is 5 to 10 inches. The particle-size control section has 5 to 30 percent clay and 10 to 50 percent fine sand or coarser.

The A1 horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 0 or 1 moist or dry. The A2 horizon has value of 3 or 4 moist and 6 or 7 dry, and it has chroma of 0 or 1 moist or dry. The A2 horizon is silt loam or loam with 5 to 27 percent clay. The A horizon has 0 to 5 percent cobbles and 0 to 10 percent gravel.

The E horizon has value of 4 or 5 moist and 6 or 7 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, loam, clay loam, or silty clay loam with 5 to 30 percent clay.

The Bw horizon has hue of 10YR or 2.5Y, value of 3 to 5 moist and 5 to 7 dry, and chroma of 2 or 3 moist or dry. It is cobbly silty clay loam, silty clay loam, gravelly clay loam, gravelly silt loam, or silt loam. It has 10 to 35 percent total rock fragment content, with 0 to 15 percent cobbles and 5 to 25 percent gravel. It has common, fine and medium, distinct or prominent redoximorphic concentrations.

### ***Endoaquolls, frigid***

The Endoaquolls, frigid, consists of very deep, poorly drained soils on flood plains of mountain valleys. These soils formed in recent alluvium derived from mixed rock, dominantly basalt. Slopes are 0 to 5 percent. Elevation is 3,300 to 5,000 feet. The mean annual precipitation is 20 to 35 inches, and the mean annual air temperature is 40 to 45 degrees F.

Reference pedon of Endoaquolls, frigid, in an area of Hapludolls-Endoaquolls-Endoaquents complex, 0 to 5 percent slopes, in an area of rangeland about 24 miles north of Enterprise, along Peavine Creek; 1,700 feet south and 50 feet west of the northeast corner of sec. 17, T. 3 N., R. 46 E.

A—0 to 10 inches; dark reddish brown (5YR 2.5/2) silt loam, brown (7.5YR 4/3) dry; moderate fine granular structure; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; few very fine and medium and common fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.5); gradual smooth boundary.

AC—10 to 18 inches; very dark gray (5YR 3/1) cobbly silt loam, brown (7.5YR 4/3) dry; weak fine and very fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; common fine and few medium and coarse roots; few very fine irregular pores; 5 percent stones, 10 percent cobbles, and 10 percent gravel; neutral (pH 7.2); clear wavy boundary.

C—18 to 61 inches; dark reddish brown (5YR 2.5/2) extremely stony sandy loam, brown (7.5YR 4/3) dry; single grain; soft, loose, slightly sticky and slightly plastic; few fine and medium roots; common very fine irregular pores; 20 percent stones, 25 percent cobbles, and 35 percent gravel; slightly alkaline (pH 7.5).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 18 to 26 inches. The particle-size control section has 5 to 35 percent clay and 25 to 65 percent rock fragments. A high water table is present in spring and summer. Occasional flooding occurs in spring. The profile is slightly acid to slightly alkaline throughout.

The A horizon has hue of 5YR or 7.5YR moist, value of 2 or 3 moist and 4 or 5 dry, and chroma of 1 or 2 moist and 2 or 3 dry. It is silt loam with 12 to 24 percent clay. It has 0 to 5 percent total rock fragment content, with 0 to 5 percent gravel.

The AC horizon has hue of 5YR or 7.5YR moist and 7.5YR or 10YR dry, value of 2 or 3 moist and 4 or 5 dry, and chroma of 1 or 2 moist and 2 or 3 dry. It is very gravelly



sandy loam, cobbly silt loam, or clay loam with 5 to 30 percent clay. It has 0 to 55 percent total rock fragment content, with 0 to 20 percent stones, 0 to 20 percent cobbles, and 0 to 45 percent gravel.

The C horizon has hue of 5YR to 10YR moist or dry, value of 2 or 3 moist and 4 or 5 dry, and chroma of 1 or 2 moist and 2 or 3 dry. It is extremely stony sandy loam, extremely cobbly sandy loam, extremely cobbly clay loam, or extremely gravelly loamy sand with 5 to 35 percent clay. It has 65 to 80 percent total rock fragment content, with 0 to 20 percent stones, 0 to 25 percent cobbles, and 25 to 65 percent gravel.

### ***Endoaquolls, mesic***

Endoaquolls, mesic, consists of very deep, poorly drained or somewhat poorly drained soils on outwash terraces. These soils formed in glaciofluvial deposits. Slopes are 0 to 3 percent. Elevation is 2,800 to 3,100 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Reference pedon of Endoaquolls, 0 to 3 percent slopes, in an area of pasture about 2 miles west of the town of Wallowa, on Diamond Prairie; 2,500 feet west and 2,000 feet north of the southeast corner of sec. 9, T. 1 N., R. 42 E.

- A—0 to 10 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; common fine prominent dark reddish brown (5YR 3/2) redoximorphic concentrations; neutral (pH 6.7); abrupt smooth boundary.
- Bw1—10 to 16 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; many fine distinct yellowish brown (10YR 5/6) redoximorphic concentrations; neutral (pH 6.7); clear wavy boundary.
- 2Bw2—16 to 21 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 25 percent cobbles and 25 percent gravel; neutral (pH 6.7); clear wavy boundary.
- 2Bw3—21 to 31 inches; brown (10YR 4/3) extremely stony loam, pale brown (10YR 6/3) dry; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; 40 percent stones, 15 percent cobbles, and 15 percent gravel; neutral (pH 6.7); gradual irregular boundary.
- 3C—31 to 60 inches; dark brown (10YR 3/3) extremely cobbly loamy fine sand, brown (10YR 5/3) dry; single grain; loose, nonsticky and nonplastic; few very fine roots; 40 percent cobbles and 20 percent gravel; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 15 to 30 inches. A high water table is present in spring. Depth to the 3C horizon is 20 to 30 inches. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It has 0 to 15 percent gravel. It is loam with 15 to 25 percent clay.

The Bw horizon has value of 2 to 4 moist and 4 to 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, loam, or gravelly clay loam with 18 to 35 percent clay. It has 0 to 5 percent cobbles and 0 to 10 percent gravel.

The 2Bw horizon has color similar to that of the Bw horizon. The 2Bw horizon is very cobbly loam, very stony loam, extremely stony silt loam, or very gravelly clay

loam with 15 to 30 percent clay. It has 0 to 40 percent stones, 15 to 25 percent cobbles, and 20 to 40 percent gravel.

The 3C horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very cobbly loamy very fine sand, extremely cobbly loamy fine sand, or very cobbly sandy loam with 5 to 15 percent clay and 30 to 70 percent very fine sand. It has 20 to 40 percent cobbles and 20 to 40 percent gravel.

### ***Feaginranch Series***

The Feaginranch series consists of very deep, very poorly drained soils in mountain valleys on flood plains in old stream channels and at the confluence of side streams. These soils formed in stratified mixed alluvium with an influence of volcanic ash in the upper part. Slopes are 0 to 2 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Feaginranch silty clay loam in an area of Wilkins-Feaginranch complex, 0 to 2 percent slopes, in a meadow about 9 miles northwest of Enterprise; 800 feet west and 2,000 feet south of the northeast corner of sec. 17, T. 2 N., R. 44 E.

Oi—5 inches to 0; dense root mat of mostly live roots and some slightly decomposed roots.

A1—0 to 4 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; massive drying to strong medium prismatic structure; very hard, firm, moderately sticky and very plastic; many medium and coarse and few fine and very fine roots; few very fine tubular pores; few fine prominent masses of iron accumulation that are dark yellowish brown (10YR 4/6) dry; neutral (pH 6.6); gradual smooth boundary.

A2—4 to 13 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; massive drying to moderate coarse subangular blocky structure; very hard, firm, moderately sticky and very plastic; few coarse, fine, and very fine roots; few fine and medium tubular pores; few fine prominent masses of iron accumulation that are dark yellowish brown (10YR 4/6) dry; neutral (pH 6.6); abrupt smooth boundary.

2C1—13 to 16 inches; variegated dark grayish brown (10YR 4/2), yellowish brown (10YR 5/4), and dark gray (10YR 4/1) silty clay loam, light gray (10YR 7/1 and 6/1) and gray (10YR 5/1) dry; massive; hard, friable, moderately sticky and moderately plastic; few coarse, fine, and very fine roots; few fine and very fine tubular pores; slightly acid (pH 6.3); abrupt wavy boundary.

2C2—16 to 20 inches; dark gray (10YR 4/1) silty clay loam, gray (10YR 6/1) dry; massive; hard, friable, moderately sticky and moderately plastic; few coarse, fine, and very fine roots; few fine and very fine tubular pores; common medium prominent masses of iron accumulation that are yellowish brown (10YR 5/6) dry; neutral (pH 6.6); abrupt smooth boundary.

3Ab—20 to 24 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; massive drying to weak coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few coarse, fine, and very fine roots; few fine and very fine tubular pores; 5 percent charcoal and dead root fibers; slightly acid (pH 6.4); abrupt wavy boundary.

4C3—24 to 37 inches; grayish brown (10YR 5/2) silty clay, light gray (10YR 7/2) dry; massive; very hard, firm, very sticky and very plastic; few coarse, fine, and very fine roots; few fine irregular pores; many medium prominent masses of iron accumulation that are reddish yellow (7.5YR 6/8) and red (2.5YR 4/8) dry; 5 percent fine gravel; slightly acid (pH 6.3); clear smooth boundary.

5C4—37 to 61 inches; dark grayish brown (10YR 4/2) gravelly clay loam, variegated

light gray (10YR 7/2) and brown (10YR 5/3) dry; massive; hard, firm, moderately sticky and moderately plastic; 15 percent gravel; many medium prominent masses of iron accumulation that are brownish yellow (10YR 6/8) and red (2.5YR 4/8) moist; slightly acid (pH 6.3).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. There is an irregular decrease in organic carbon below the mollic epipedon. The upper 10 to 20 inches is influenced by volcanic ash. The particle-size control section has 35 to 45 percent clay and averages less than 15 percent gravel. A high water table is present in winter through early in summer. Occasional flooding and ponding occur in winter and spring. The profile is moderately acid to neutral throughout.

The A horizon has value of 2 or 3 moist and 2 to 5 dry, and it has chroma 0 or 1 moist or dry. It has 0 to 5 percent gravel. It has few to common, distinct or prominent redoximorphic concentrations. It has 5 to 15 percent volcanic glass.

The 2C horizon has value of 3 to 5 moist and 6 to 8 dry, and it has chroma of 1 or 2 moist or dry. It is silty clay loam or silty clay with 35 to 45 percent clay.

The 3Ab horizon, where present, has value of 2 to 4 moist and 4 to 7 dry, and it has chroma of 1 or 2 moist or dry. It has redoximorphic depletions or concentrations. It has 30 to 35 percent clay.

The 4C and 5C horizons have hue of 10YR or 2.5Y, value of 4 or 5 moist and 5 to 8 dry, and chroma of 2 or 3 moist or dry. They are silty clay, clay, or gravelly clay loam with 35 to 45 percent clay. They have 5 to 30 percent gravel.

### ***Ferguson Series***

The Ferguson series consists of very deep, well drained soils on moraines and outwash fans. These soils formed in dominantly granitic glaciofluvial deposits with a volcanic ash mantle. Slopes are 2 to 60 percent. Elevation is 4,000 to 6,200 feet. The mean annual precipitation is 30 to 40 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Ferguson very fine sandy loam, 2 to 15 percent slopes, in an area of woodland about 5 miles southeast of Joseph; 300 feet west and 2,500 feet south of the northeast corner of sec. 23, T. 3 S., R. 45 E.

Oi—1 inch to 0; slightly decomposed twigs and needles.

A—0 to 7 inches; brown (10YR 4/3) very fine sandy loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium and fine and common very fine roots; few fine and common very fine irregular pores; neutral (pH 6.6); clear wavy boundary.

Bw1—7 to 24 inches; yellowish brown (10YR 5/4) very fine sandy loam, very pale brown (10YR 7/4) dry; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; common very fine tubular pores; 5 percent cobbles and 5 percent gravel; few 2- to 4-inch krotovinas; neutral (pH 6.6); abrupt wavy boundary.

2Bw2—24 to 38 inches; brown (10YR 4/3) very stony sandy loam, pale brown (10YR 6/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; common very fine tubular pores; 30 percent stones, 10 percent cobbles, and 5 percent gravel; neutral (pH 6.7); gradual wavy boundary.

2Bw3—38 to 45 inches; brown (10YR 4/3) very gravelly sandy loam, pale brown (10YR 6/3) dry; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular

pores; 10 percent stones, 10 percent cobbles, and 25 percent gravel; neutral (pH 6.6); abrupt wavy boundary.

2C—45 to 60 inches; dark yellowish brown (10YR 4/4) very gravelly loamy coarse sand, light yellowish brown (10YR 6/4) dry; single grain; loose, very friable, nonsticky and nonplastic; 10 percent cobbles and 45 percent gravel; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. The volcanic ash mantle is 14 to 25 inches thick, and it has 30 to 55 percent volcanic glass. Depth to the 2C horizon is 40 to 60 inches. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 to 4 moist and 4 to 6 dry, and it has chroma of 1 to 3 moist or dry. It is very fine sandy loam with 5 to 15 percent clay and 0 to 5 percent gravel.

The Bw horizon has value of 3 to 5 moist and 5 to 7 dry, and it has chroma of 2 to 4 moist or dry. It is very fine sandy loam or silt loam with 5 to 15 percent clay. It has 0 to 5 percent cobbles and 5 to 10 percent gravel.

The 2Bw horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is very stony sandy loam, very gravelly sandy loam, or very cobbly sandy clay loam with 15 to 22 percent clay. It has 0 to 30 percent stones, 10 to 20 percent cobbles, and 5 to 25 percent gravel.

The 2C horizon has color similar to that of the 2Bw horizon. It is very gravelly loamy coarse sand, very gravelly coarse sand, or extremely gravelly coarse sand with 5 to 15 percent clay. It has 0 to 15 percent stones, 10 to 20 percent cobbles, and 30 to 50 percent gravel.

### ***Fivebit Series***

The Fivebit series consists of shallow, well drained soils on structural benches, in canyons, and on plateaus. These soils formed in colluvium and residuum derived from basalt. Slopes are 0 to 90 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 15 to 35 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Fivebit very gravelly sandy loam in an area of Anatone-Bocker-Fivebit complex, 30 to 60 percent south slopes, in an area of rangeland about 16 miles east of Joseph, near Marr Flat; 1,000 feet south and 1,000 feet west of the northwest corner of sec. 14, T. 3 S., R. 47 E.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) dry; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many fine, medium, and coarse roots; many fine irregular pores and few fine tubular pores; 45 percent gravel; moderately acid (pH 6.0); abrupt smooth boundary.

AB—4 to 9 inches; dark brown (7.5YR 3/2) extremely gravelly sandy loam, brown (7.5YR 5/2) dry; strong medium subangular blocky structure parting to strong fine granular; soft, very friable, nonsticky and nonplastic; common fine, medium, and coarse roots; common fine irregular pores; 15 percent cobbles and 45 percent gravel; slightly acid (pH 6.5); clear smooth boundary.

Bw1—9 to 15 inches; dark brown (7.5YR 3/2) extremely gravelly sandy loam, brown (7.5YR 5/2) dry; strong medium subangular blocky structure; soft, friable, nonsticky and nonplastic; few fine, medium, and coarse roots; common fine irregular pores and few fine tubular pores; 10 percent cobbles and 60 percent gravel; slightly acid (pH 6.5); abrupt smooth boundary.

Bw2—15 to 19 inches; brown (7.5YR 4/4) extremely gravelly sandy loam, brown

(7.5YR 5/4) dry; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; few fine roots; 10 percent stones, 20 percent cobbles, and 50 percent gravel; slightly acid (pH 6.5); abrupt wavy boundary.  
R—19 inches; basalt.

Depth to bedrock is 10 to 20 inches. Thickness of the mollic epipedon is 7 to 17 inches. The particle-size control section averages more than 60 percent rock fragments and 18 to 27 percent clay. The profile is moderately acid to neutral.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist or dry. It is very gravelly sandy loam with 10 to 20 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 5 percent stones, 5 to 15 percent cobbles, and 10 to 45 percent gravel.

The AB horizon may be absent in some pedons. It has hue of 10YR or 7.5YR, value of 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is very gravelly or extremely gravelly sandy loam or extremely gravelly loam with 18 to 25 percent clay. It has 35 to 65 percent total rock fragment content, with 0 to 5 percent stones, 10 to 20 percent cobbles, and 30 to 45 percent gravel.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 2 or 4 moist and 2 to 5 dry. It is extremely gravelly sandy loam or extremely gravelly loam with 18 to 27 percent clay. It has 60 to 80 percent total rock fragment content, with 0 to 10 percent stones, 10 to 30 percent cobbles, and 30 to 60 percent gravel.

### ***Flybow Series***

The Flybow series consists of very shallow, well drained soils in canyons. These soils formed in colluvium derived from basalt. Slopes are 30 to 90 percent. Elevation is 800 to 2,800 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Flybow extremely gravelly loam in an area of Flybow-Rubble land-Rock outcrop complex, 60 to 90 percent south slopes, in an area of rangeland about 43 miles north of Enterprise, along Garden Creek near the Snake River; 1,760 feet south and 2,000 feet west of the northeast corner of sec. 26, T. 6 N., R. 47 E.

A1—0 to 2 inches; dark yellowish brown (10YR 3/4) extremely gravelly loam, yellowish brown (10YR 5/4) dry; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular pores; 5 percent cobbles and 65 percent gravel; neutral (pH 6.9); gradual wavy boundary.

A2—2 to 8 inches; dark yellowish brown (10YR 3/4) very gravelly loam, yellowish brown (10YR 5/4) dry; weak fine granular structure; slightly hard, friable, moderately sticky and slightly plastic; few very fine and fine roots; common very fine irregular pores; 5 percent cobbles and 50 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

2R—8 inches; Imnaha basalt.

Depth to bedrock is 4 to 10 inches. Weathered Imnaha basalt generally consists of dark-colored material, but the organic matter content is less than 1 percent. The profile is slightly acid or neutral.

The A horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 3 to 5 moist or dry. The A1 horizon is extremely gravelly loam and has 0 to 20 percent cobbles and 60 to 75 percent gravel. The A2 horizon is very gravelly or extremely gravelly loam and has 0 to 20 percent cobbles and 40 to 55 percent gravel.



## ***Flycreek Series***

The Flycreek series consists of moderately deep, well drained soils on plateaus and in canyons. These soils formed in volcanic ash over colluvium and residuum derived from acidic tuff. Slopes are 2 to 90 percent. Elevation is 3,600 to 5,800 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Flycreek silt loam in an area of Btree-Flycreek complex, 15 to 30 percent north slopes, in a forested area about 3 miles southwest of Joseph; 1,320 feet south and 1,320 feet west of the northeast corner of sec. 2, T. 3 S., R. 44 E.

Oi—3 inches to 0; partially decomposed moss, needles, and twigs.

A—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine irregular pores; 5 percent gravel; moderately acid (pH 5.6); clear smooth boundary.

Bw—6 to 17 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few fine and common very fine tubular pores; 10 percent gravel; moderately acid (pH 5.7); abrupt smooth boundary.

2Btb1—17 to 20 inches; dark yellowish brown (10YR 4/4) gravelly clay loam, yellowish brown (10YR 5/4) dry; strong medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and very fine roots; few fine and very fine tubular pores; common distinct clay films on faces of peds; 20 percent gravel; moderately acid (pH 5.8); abrupt wavy boundary.

2Btb2—20 to 31 inches; dark yellowish brown (10YR 4/4) gravelly clay, yellowish brown (10YR 5/4) dry; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few medium, fine, and very fine roots; few very fine tubular pores; many distinct clay films on faces of peds and in pores; 5 percent cobbles and 20 percent gravel; moderately acid (pH 5.8); clear wavy boundary.

2Btb3—31 to 35 inches; brown (10YR 5/3) gravelly clay loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; few medium, fine, and very fine roots; few very fine tubular pores; common faint clay films on faces of peds; 20 percent gravel; moderately acid (pH 5.9); abrupt wavy boundary.

2R—35 inches; weathered acidic basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the volcanic ash mantle is 14 to 22 inches. The upper part of the particle-size control section has 5 to 15 percent clay and 0 to 10 percent rock fragments. It has 10 to 25 percent volcanic glass. The lower part has 35 to 50 percent clay and 5 to 20 percent rock fragments.

The A horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 5 percent gravel.

The Bw horizon has value of 4 or 5 moist and 6 or 7 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam, very fine sandy loam, or loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The 2Btb horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is gravelly clay, gravelly clay loam, clay loam, or clay with 35 to 50 percent clay. It has 5 to 20 percent total rock fragment content, with 0 to 5 percent cobbles and 5 to 20 percent gravel.

### ***Flyvalley Series***

The Flyvalley series consists of shallow, well drained soils on plateaus. These soils formed in volcanic ash over acidic tuff. Slopes are 2 to 15 percent. Elevation is 4,000 to 5,800 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Flyvalley silt loam in an area of Flycreek-Flyvalley complex, 2 to 15 percent slopes, in an area of woodland about 6.5 miles southeast of Joseph, near McCully Creek; 650 feet west and 1,600 feet north of the southeast corner of sec. 19, T. 3 S., R. 46 E.

Oi—1 inch to 0; partially decomposed twigs and needles

A—0 to 6 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine tubular pores; 5 percent gravel; strongly acid (pH 5.5); gradual smooth boundary.

Bw—6 to 19 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few fine and common very fine tubular pores; 5 percent cobbles and 5 percent gravel; moderately acid (pH 5.8); abrupt wavy boundary.

R—19 inches; hard tuff.

Depth to bedrock is 10 to 20 inches. Thickness of the volcanic ash mantle is 10 to 20 inches. The particle-size control section has 5 to 15 percent clay and 0 to 20 percent rock fragments. It has 10 to 25 percent volcanic glass. The profile is strongly acid or moderately acid throughout.

The A horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 5 percent gravel.

The Bw horizon has value of 4 or 5 moist and 6 or 7 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam, loam, or gravelly very fine sandy loam with 5 to 15 percent clay. It has 0 to 5 percent cobbles and 0 to 15 percent gravel.

### ***Freels Series***

The Freels series consists of very deep, moderately well drained soils on flood plains and low stream terraces. These soils formed in alluvium. Slopes are 0 to 3 percent. Elevation is 3,400 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Freels silt loam, 0 to 3 percent slopes, in an area of hay and pasture 2 miles north of Enterprise, along Trout Creek; 1,300 feet north and 2,500 feet east of the southwest corner of sec. 23, T. 1 S., R. 44 E.

A1—0 to 5 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and medium granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular and tubular pores; neutral (pH 7.0); clear wavy boundary.

A2—5 to 20 inches; very dark brown (10YR 2/2) silt loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; neutral (pH 7.2); gradual wavy boundary.

AB—20 to 34 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium prismatic structure and moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine



and few fine roots; few medium and common very fine and fine tubular pores; few fine pieces of charcoal in the upper part; slightly alkaline (pH 7.4); clear wavy boundary.

Bw1—34 to 38 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine and few medium tubular pores; neutral (pH 7.0); clear wavy boundary.

Bw2—38 to 51 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium and common fine and very fine tubular pores; few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral (pH 7.0); clear wavy boundary.

C—51 to 60 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; massive; hard, friable, slightly sticky and slightly plastic; few medium and common fine and very fine tubular pores; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 40 inches. A high water table is present in spring. Rare flooding occurs in spring. The profile is neutral or slightly alkaline throughout.

The A and AB horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 1 or 2 moist or dry. The A1 horizon is silt loam with 10 to 18 percent clay and 0 to 5 percent gravel. The A2 and AB horizons are silt loam, loam, or fine sandy loam with 10 to 18 percent clay and 0 to 10 percent gravel.

The Bw horizon has value of 2 or 3 moist and 4 to 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, loam, or fine sandy loam with 10 to 18 percent clay and 0 to 10 percent gravel. In some pedons there is a layer of volcanic ash in the upper part of the Bw horizon. Redoximorphic concentrations are in the lower part of the Bw horizon in some pedons.

The C horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, gravelly loam, sandy loam, or very gravelly sand with 5 to 15 percent clay. It has 0 to 60 percent gravel.

## ***Geisercreek Series***

The Geisercreek series consists of very deep, well drained soils on backslopes or toeslopes of mountains. These soils formed in a mantle of volcanic ash over residuum and colluvium derived from soft tuff. Slopes are 15 to 30 percent. Elevation is 4,800 to 5,300 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Geisercreek silt loam, 15 to 30 percent north slopes, in an area of woodland about 5 miles southwest of Enterprise, along Bookout Creek; 350 feet north and 1,900 feet west of the southeast corner of sec. 7, T. 2 S., R. 44 E.

Oi—2 inches to 0; partially decomposed needles, twigs, and branches.

A—0 to 5 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; few fine and many very fine irregular pores; 10 percent gravel; neutral (pH 7.3); clear smooth boundary.

Bw—5 to 14 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and many very fine tubular pores; 10 percent gravel; neutral (pH 7.3); clear smooth boundary.

BC—14 to 19 inches; yellowish brown (10YR 5/4) silt loam, very pale brown (10YR

7/4) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; few fine and common very fine tubular pores; 10 percent gravel; neutral (pH 6.7); clear wavy boundary.

2Eb—19 to 23 inches; dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/3) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine and common very fine tubular pores; 10 percent gravel; neutral (pH 6.7); abrupt wavy boundary.

2Btb1—23 to 29 inches; olive brown (2.5Y 4/3) clay, light yellowish brown (2.5Y 6/3) dry; moderate medium subangular blocky structure; hard, very firm, moderately sticky and moderately plastic; few fine and very fine roots; few fine and very fine tubular pores; many distinct clay films on faces of peds; 10 percent gravel; neutral (pH 6.8); clear wavy boundary.

2Btb2—29 to 35 inches; brown (7.5YR 4/3) cobbly clay, light brown (7.5YR 6/3) dry; strong coarse subangular blocky structure; hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; many distinct clay films on faces of peds and in pores; 5 percent stones and 10 percent cobbles; neutral (pH 6.8); clear wavy boundary.

2BCtb—35 to 60 inches; dark yellowish brown (10YR 4/4) cobbly silty clay loam, light yellowish brown (10YR 6/4) dry; strong coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine tubular pores; common distinct clay films on faces of peds and in pores; 15 percent cobbles and 15 percent gravel; neutral (pH 6.7).

Depth to bedrock is 60 inches or more. Thickness of the volcanic ash mantle is 15 to 22 inches. Depth to the clayey layer is 20 to 35 inches. The upper part of the particle-size control section has 5 to 15 percent clay and 0 to 10 percent rock fragments. It has 10 to 25 percent volcanic glass. The lower part has 35 to 45 percent clay and 0 to 30 percent rock fragments. The profile is moderately acid to neutral throughout.

The A horizon has value of 3 or 4 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The Bw horizon has value of 3 to 5 moist and 6 to 8 dry, and it has chroma of 3 to 6 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The BC horizon has value of 5 or 6 moist and 7 or 8 dry, and it has chroma of 4 to 6 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The 2Eb horizon has hue of 10YR or 2.5Y, value of 4 or 5 moist and 6 or 7 dry, and chroma of 2 to 4 moist or dry. It is silt loam, gravelly silt loam, or loam with 15 to 25 percent clay. It has 0 to 15 percent total rock fragment content, with 0 to 5 percent stones, 0 to 5 percent cobbles, and 0 to 15 percent gravel.

The 2Btb horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 3 to 5 moist and 5 or 6 dry, and chroma of 3 or 4 moist or dry. It is gravelly clay loam, cobbly silty clay loam, silty clay, silty clay loam, cobbly clay, or clay with 35 to 45 percent clay. It has 0 to 30 percent total rock fragment content, with 0 to 5 percent stones, 0 to 10 percent cobbles, and 0 to 20 percent gravel.

The 2BCtb horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 4 or 5 moist and 6 or 7 dry, and chroma of 3 or 4 moist or dry. It is cobbly clay loam, cobbly silty clay loam, or silty clay loam with 30 to 40 percent clay. It has 0 to 30 percent total rock fragment content, with 0 to 5 percent stones, 0 to 15 percent cobbles, and 0 to 25 percent gravel.

## ***Gelsinger Series***

The Gelsinger series consists of very deep, well drained soils on fans. These soils formed in loess over clayey colluvium derived from basalt. Slopes are 2 to 15 percent. Elevation is 2,700 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 47 degrees F.

Typical pedon of Gelsinger silt loam, 2 to 8 percent slopes, in a cultivated area about 3 miles northwest of Lostine; 150 feet south and 150 feet east of the northwest corner of sec. 5, T. 1 S., R. 43 E.

- Ap—0 to 10 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine irregular pores; neutral (pH 6.8); clear wavy boundary.
- AB—10 to 14 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores; neutral (pH 6.9); clear wavy boundary.
- Bt—14 to 21 inches; dark brown (10YR 3/3) silty clay, brown (10YR 5/3) dry; moderate medium and coarse prismatic structure; very hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; common distinct clay films on faces of peds; neutral (pH 7.0); abrupt wavy boundary.
- Btk—21 to 36 inches; dark yellowish brown (10YR 4/4) silty clay loam, yellowish brown (10YR 5/4) dry; moderate fine and medium prismatic structure; very hard, firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; continuous prominent clay films on faces of peds and lining pores; soft powdery calcium carbonate in seams; violently effervescent; moderately alkaline (pH 8.0); clear irregular boundary.
- BC—36 to 45 inches; brown (10YR 4/3) clay loam, brown (10YR 5/3) dry; weak medium and coarse subangular blocky structure; soft, friable, moderately sticky and slightly plastic; few very fine roots; common very fine tubular pores; moderately alkaline (pH 8.0); clear wavy boundary.
- C—45 to 51 inches; brown (7.5YR 4/3) loam, pale brown (10YR 6/3) dry; massive; soft, very friable, slightly sticky and slightly plastic; common very fine tubular pores; moderately alkaline (pH 8.0); abrupt wavy boundary.
- 2Btb—51 to 60 inches; brown (7.5YR 4/4) clay loam, light yellowish brown (10YR 6/4) dry; strong very fine and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine tubular pores; many distinct clay films on faces of peds; moderately alkaline (pH 8.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. Depth to soft powdery calcium carbonate is 20 to 35 inches. Depth to the clayey Bt horizon is 11 to 23 inches.

The Ap and AB horizons have value of 2 or 3 moist and 3 to 5 dry, and they have chroma of 1 or 2 moist or dry.

The Bt horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist or dry. It is silty clay or clay with 40 to 50 percent clay. It is neutral or slightly alkaline.

The Btk horizon has hue of 7.5YR or 10YR, value of 3 to 5 moist and 4 to 6 dry, and chroma of 2 to 4 moist or dry. It is silty clay loam, clay loam, or clay with 35 to 45 percent clay. It has 0 to 10 percent cobbles and 0 to 10 percent gravel. It is slightly alkaline or moderately alkaline. It has 5 to 10 percent calcium carbonate equivalent.

The BC and C horizons have hue of 7.5YR or 10YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 3 or 4 moist or dry. They are loam or clay loam with 25 to 35

percent clay. They have 0 to 5 percent cobbles and 0 to 5 percent gravel. They are slightly alkaline or moderately alkaline.

The 2Btb horizon, where present, has color, texture, and soil reaction similar to those of the C horizon. The 2Btb horizon is clay loam, gravelly clay loam, or loam. It has 0 to 5 percent cobbles and 0 to 20 percent gravel.

### ***Getaway Series***

The Getaway series consists of deep, well drained soils in canyons. These soils formed in colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part. Slopes are 15 to 90 percent. Elevation is 2,800 to 5,000 feet. The mean annual precipitation is 15 to 35 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Getaway cobbly silt loam in an area of Getaway-Harlow complex, 30 to 60 percent north slopes, in an area of woodland about 4 miles south of the Joseph Canyon Viewpoint, on Highway 3; 1,400 feet south and 1,500 feet east of the northwest corner of sec. 1, T. 3 N., R. 44 E.

Oi—1 inch to 0; mostly needles and twigs, slightly decomposed in the lower part.

A1—0 to 6 inches; very dark brown (10YR 2/2) cobbly silt loam, brown (10YR 4/3) dry; moderate fine and medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 10 percent cobbles and 10 percent gravel; neutral (pH 6.8); clear smooth boundary.

A2—6 to 13 inches; very dark brown (10YR 2/2) cobbly silt loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; 10 percent cobbles and 15 percent gravel; neutral (pH 6.7); clear smooth boundary.

Bt1—13 to 34 inches; dark brown (7.5YR 3/2) very cobbly silty clay loam, brown (7.5YR 4/2) dry; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; few faint clay films on faces of peds; 25 percent cobbles and 15 percent gravel; neutral (pH 6.6); clear wavy boundary.

Bt2—34 to 48 inches; dark brown (7.5YR 3/4) very cobbly silty clay loam, brown (7.5YR 4/4) dry; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine tubular pores; few faint clay films on faces of peds; 30 percent cobbles and 15 percent gravel; neutral (pH 6.6); abrupt wavy boundary.

R—48 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 20 to 35 inches. The upper 10 to 18 inches is influenced by volcanic ash. The profile is moderately acid to neutral.

The A1 and A2 horizons have value of 2 or 3 moist and 3 or 4 dry, and they have chroma of 2 or 3 moist or dry. They have 0 to 10 percent stones, 5 to 25 percent cobbles, and 5 to 20 percent gravel. The A1 horizon is cobbly silt loam or stony silt loam with 18 to 27 percent clay. The A2 horizon is cobbly silt loam, very cobbly silt loam, or very gravelly silt loam with 18 to 27 percent clay.

The Bt horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 3 to 5 dry, and chroma of 2 to 4 moist or dry. It is very cobbly silty clay loam, extremely cobbly silty clay loam, very cobbly clay loam, or extremely gravelly clay loam with 27 to 35 percent clay. It has 0 to 10 percent stones, 25 to 45 percent cobbles, and 10 to 55 percent gravel.

### ***Gwin Series***

The Gwin series consists of shallow, well drained soils in south- and east-facing canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 30 to 90 percent. Elevation is 800 to 4,000 feet. The mean annual precipitation is 15 to 24 inches, and the mean annual air temperature is 45 to 51 degrees F.

Typical pedon of Gwin very gravelly silt loam in an area of Gwin-Kettenbach-Rock outcrop complex, 30 to 60 percent south slopes, in an area of rangeland about 41 miles north of Enterprise, along Horse Creek; 2,000 feet north and 1,320 feet west of the southeast corner of sec. 29, T. 6. N., R. 47 E.

- A—0 to 5 inches; very dark brown (10YR 2/2) very gravelly silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and few fine tubular pores; 5 percent stones, 10 percent cobbles, and 25 percent gravel; neutral (pH 6.8); clear wavy boundary.
- Bt1—5 to 9 inches; very dark brown (10YR 2/2) very cobbly silt loam, dark grayish brown (10YR 4/2) dry; strong fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; few faint clay films on faces of peds; 5 percent stones, 25 percent cobbles, and 25 percent gravel; neutral (pH 6.9); clear smooth boundary.
- Bt2—9 to 13 inches; dark brown (10YR 3/3) very cobbly silty clay loam, brown (10YR 4/3) dry; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine tubular pores; many distinct clay films on faces of peds; 25 percent cobbles and 25 percent gravel; neutral (pH 6.9); abrupt wavy boundary.
- 2R—13 inches; basalt.

Depth to bedrock is 10 to 20 inches. Thickness of the mollic epipedon is 10 to 20 inches.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 to 3 moist and 2 or 3 dry. It has 0 to 10 percent stones, 10 to 15 percent cobbles, and 25 to 35 percent gravel. It is very gravelly silt loam with 18 to 27 percent clay.

The Bt horizon has hue of 7.5YR or 10YR, value of 2 to 4 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is extremely cobbly clay loam, very cobbly silt loam, or very cobbly silty clay loam with 25 to 35 percent clay. It has 50 to 85 percent total rock fragment content, with 0 to 10 percent stones, 25 to 40 percent cobbles, and 25 to 35 percent gravel.

### ***Gwinly Series***

The Gwinly series consists of shallow, well drained soils on plateaus and structural benches and in canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 2 to 90 percent. Elevation is 1,400 to 4,100 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Gwinly very cobbly silt loam in an area of Gwinly-Mallory-Kettenbach complex, 15 to 30 percent south slopes, in an area of rangeland about 3 miles west of Troy; 1,500 feet south and 600 feet west of the northeast corner of sec. 36, T. 6 N., R. 42 E.

- A—0 to 4 inches; very dark brown (10YR 2/2) very cobbly silt loam, brown (10YR 4/3) dry; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; many very fine irregular pores; 3 percent stones,



25 percent cobbles, and 10 percent gravel; neutral (pH 7.0); clear wavy boundary.

BA—4 to 10 inches; dark brown (10YR 3/3) very cobbly silty clay loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 30 percent cobbles and 10 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

Bt—10 to 17 inches; dark yellowish brown (10YR 3/4) extremely cobbly clay, dark yellowish brown (10YR 4/4) dry; moderate fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine roots; common very fine tubular pores; few faint clay films on faces of peds and in pores; 40 percent cobbles and 20 percent gravel; neutral (pH 7.0); abrupt irregular boundary.

2R—17 inches; basalt.

Depth to bedrock is 10 to 20 inches. The mollic epipedon is 10 to 20 inches thick, and it includes all or part of the argillic horizon. Depth to the argillic horizon is 6 to 13 inches.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is very stony silt loam or very cobbly silt loam with 18 to 27 percent clay. It has 3 to 20 percent stones, 15 to 35 percent cobbles, and 5 to 15 percent gravel. It is neutral or slightly alkaline.

The BA horizon, where present, has color similar to that of the A horizon. It is very cobbly silt loam or very cobbly silty clay loam with 18 to 27 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 5 percent stones, 15 to 35 percent cobbles, and 5 to 15 percent gravel.

The Bt horizon has hue of 5YR, 7.5YR, or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 to 4 moist or dry. It is clay with 40 to 50 percent clay. It has 40 to 80 percent total rock fragment content, with 0 to 5 percent stones, 30 to 50 percent cobbles, and 10 to 20 percent gravel.

## ***Hapludolls***

Hapludolls consists of very deep, somewhat poorly drained soils on fans and low stream terraces of mountain valleys. These soils formed in mixed colluvium, slope alluvium, and alluvium. Slopes are 0 to 5 percent. Elevation is 3,300 to 5,000 feet. The mean annual precipitation is 20 to 35 inches, and the mean annual air temperature is 40 to 45 degrees F.

Reference pedon of Hapludolls in an area of Hapludolls-Endoaquolls-Endoaquents complex, 0 to 5 percent slopes, in an area of woodland about 21 miles north of Enterprise, along Swamp Creek; 1,300 feet north and 800 feet west of the southeast corner of sec. 19, T. 3 N., R. 45 E.

A—0 to 11 inches; dark reddish brown (5YR 2.5/2) silt loam, brown (7.5YR 5/2) dry; weak fine and medium granular structure; soft, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; few very fine irregular pores and few fine and medium tubular pores; neutral (pH 7.0); clear wavy boundary.

Bw1—11 to 24 inches; brown (7.5YR 4/2) silt loam, brown (7.5YR 4/2) dry; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; few very fine irregular and tubular pores; slightly alkaline (pH 7.5); clear smooth boundary.

2Bw2—24 to 43 inches; dark brown (7.5YR 3/2) extremely cobbly sandy clay loam, brown (7.5YR 5/3) dry; weak very fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and medium roots; few

very fine irregular pores; 15 percent stones, 20 percent cobbles, and 25 percent gravel; common fine red (2.5YR 4/8) masses of iron accumulation; slightly alkaline (pH 7.5); gradual smooth boundary.

2C—43 to 61 inches; dark brown (7.5YR 3/2) extremely cobbly loamy sand, brown (7.5YR 5/3) dry; single grain; loose, nonsticky and nonplastic; common very fine irregular pores; 15 percent stones, 20 percent cobbles, and 35 percent gravel; continuous gray (N 5/0) depletions; slightly alkaline (pH 7.5).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 11 to 13 inches. A high water table is present in spring and summer. Rare flooding occurs in spring. The particle-size control section has 18 to 35 percent clay and 10 to 60 percent rock fragments.

The A horizon has hue of 2.5YR to 7.5YR moist and 5YR or 7.5YR dry, value of 2 or 3 moist and 2 to 5 dry, and chroma of 1 to 3 moist and 2 or 3 dry. It is silt loam with 10 to 27 percent clay. It has 0 to 15 percent total rock fragment content, with 0 to 5 percent stones, 0 to 10 percent cobbles, and 0 to 5 percent gravel. It is slightly acid to slightly alkaline.

The Bw horizon has hue of 5YR or 7.5YR moist, value of 3 or 4 moist and 4 to 6 dry, and chroma of 1 to 4 moist and 2 to 5 dry. It is very gravelly sandy loam, very gravelly sandy clay loam, silt loam, or loam with 15 to 30 percent clay. It has 0 to 50 percent total rock fragment content, with 0 to 5 percent stones, 0 to 15 percent cobbles, and 0 to 30 percent gravel. It is neutral or slightly alkaline.

The 2Bw and 2C horizons have hue of 5YR or 7.5YR moist and 7.5YR or 10YR dry, value of 3 or 4 moist and 4 to 6 dry, and chroma of 2 or 3 moist and 1 to 4 dry. They are extremely cobbly sandy clay loam, very gravelly sandy loam, extremely cobbly loamy sand, or loam with 5 to 35 percent clay. They have 5 to 75 percent total rock fragment content, with 0 to 20 percent stones, 0 to 20 percent cobbles, and 5 to 50 percent gravel. They are slightly alkaline or moderately alkaline.

## ***Harl Series***

The Harl series consists of very deep, well drained soils in canyons. These soils formed in volcanic ash over colluvium derived from basalt. Slopes are 30 to 90 percent. Elevation is 2,800 to 5,400 feet. The mean annual precipitation is 20 to 40 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Harl very gravelly silt loam in an area of Harl-Limberjim-Rock outcrop complex, 60 to 90 percent north slopes, in an area of woodland about 12 miles east of Joseph, near Marr Flat; 960 feet south and 240 feet east of the northwest corner of sec. 19, T. 3 S., R. 47 E.

Oi—1 inch to 0; partially decomposed needles and leaves.

A—0 to 2 inches; dark brown (10YR 3/3) very gravelly silt loam, brown (10YR 5/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine and medium roots; common fine irregular pores; 2 percent stones, 5 percent cobbles, and 30 percent gravel; moderately acid (pH 6.0); clear smooth boundary.

Bw1—2 to 13 inches; brown (10YR 4/3) very gravelly silt loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; many fine and few medium irregular pores; 5 percent stones, 10 percent cobbles, and 30 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.

Bw2—13 to 24 inches; yellowish brown (10YR 5/4) very gravelly fine sandy loam, very pale brown (10YR 8/4) dry; weak very fine granular structure; loose, nonsticky and nonplastic; many very fine and fine and common medium roots;



many fine and few medium irregular pores; 5 percent stones, 15 percent cobbles, and 30 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

2EBb—24 to 29 inches; brown (10YR 5/3) extremely gravelly silt loam, pale brown (10YR 6/3) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine, common medium, and few coarse roots; many fine and common medium irregular pores; 5 percent stones, 15 percent cobbles, and 45 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.

2Bwb1—29 to 48 inches; brown (10YR 5/3) extremely gravelly loam, pale brown (10YR 6/3) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; many fine, common medium, and few coarse irregular pores; 5 percent stones, 15 percent cobbles, and 45 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.

2Bwb2—48 to 61 inches; brown (10YR 5/3) extremely gravelly loam, very pale brown (10YR 7/3) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; common medium and coarse and many fine irregular pores; 5 percent stones, 20 percent cobbles, and 50 percent gravel; slightly acid (pH 6.5).

Depth to bedrock is 60 inches or more. Thickness of the volcanic ash mantle is 16 to 38 inches. The upper part of the particle-size control section (0 to 24 inches) averages 5 to 10 percent clay with 35 to 65 percent total rock fragment content. The lower part (24 to 40 inches) averages 10 to 15 percent clay with 50 to 80 percent total rock fragment content.

The A horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 5 to 7 dry, and chroma of 2 or 3 moist or dry. It is very gravelly silt loam with 5 to 15 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 5 percent stones, 5 to 10 percent cobbles, and 30 to 45 percent gravel. It is moderately acid to neutral.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 or 5 moist and 6 to 8 dry, and chroma of 3 or 4 moist or dry. It is very gravelly silt loam or very gravelly or very cobbly fine sandy loam with 5 to 15 percent clay. It has 35 to 65 percent total rock fragment content, with 0 to 10 percent stones, 10 to 20 percent cobbles, and 25 to 35 percent gravel. It is slightly acid or neutral.

The 2EBb horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is extremely gravelly silt loam, extremely cobbly loam, or very gravelly sandy loam with 10 to 18 percent clay. It has 50 to 80 percent total rock fragment content, with 5 to 15 percent stones, 15 to 25 percent cobbles, and 30 to 45 percent gravel. It is slightly acid or neutral.

The 2Bwb horizon has hue of 10YR, 7.5YR, or 5YR, value of 4 or 5 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is extremely gravelly or extremely cobbly loam, extremely cobbly sandy loam, or extremely cobbly silt loam with 10 to 18 percent clay. It has 60 to 80 percent total rock fragment content, with 5 to 15 percent stones, 15 to 25 percent cobbles, and 30 to 50 percent gravel. It is slightly acid or neutral.

### ***Harlow Series***

The Harlow series consists of shallow, well drained soils on hills, in canyons, and on structural benches and plateaus. These soils formed in loess and colluvium derived from basalt. Slopes are 0 to 90 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 13 to 35 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Harlow very stony loam in an area of Harlow-Snell-Imnaha complex, moist, 15 to 30 percent south slopes, in an area of rangeland about 7 miles

northeast of the town of Flora; 2,500 feet west and 1,760 feet south of the northeast corner of sec. 19, T. 6 N., R. 45 E.

- A1—0 to 4 inches; very dark brown (10YR 2/2) very stony loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; soft, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; 15 percent stones, 10 percent cobbles, and 15 percent gravel; neutral (pH 7.0); clear wavy boundary.
- A2—4 to 8 inches; very dark grayish brown (10YR 3/2) very cobbly clay loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine tubular pores; 15 percent cobbles and 25 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
- Bt—8 to 16 inches; dark brown (10YR 3/3) extremely cobbly clay, brown (10YR 5/3) dry; moderate coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; many distinct clay films on faces of peds; 30 percent cobbles and 30 percent gravel; neutral (pH 6.8); abrupt wavy boundary.
- 2R—16 inches; basalt and tuff.

Depth to bedrock is 10 to 20 inches. The mollic epipedon is 10 to 20 inches thick, and it includes all of the argillic horizon. Depth to the argillic horizon is 8 to 16 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 or 4 dry, and chroma of 2 or 3 moist or dry. The A1 horizon is very stony loam, very stony clay loam, or silt loam with 18 to 35 percent clay. It has 0 to 15 percent stones, 0 to 15 percent cobbles, and 0 to 25 percent gravel. The A2 horizon is clay loam with 27 to 35 percent clay. It has color similar to that of the A1 horizon. It has 0 to 5 percent stones, 15 to 25 percent cobbles, and 25 to 35 percent gravel.

The Bt horizon has hue of 5YR, 7.5YR, or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist or dry. It is clay with 40 to 50 percent clay. It has 45 to 75 percent total rock fragment content, with 0 to 5 percent stones, 25 to 40 percent cobbles, and 30 to 45 percent gravel.

### ***Hershal Series***

The Hershal series consists of very deep, poorly drained soils on flood plains. These soils formed in stratified mixed alluvium. Slopes are 0 to 2 percent. Elevation is 2,700 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Hershal silt loam, 0 to 2 percent slopes, in an area of pasture about 2 miles southeast of the town of Wallowa; 2,640 feet west and 1,100 feet north of the southeast corner of sec. 19, T. 1 N., R. 43 E.

- A1—0 to 4 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium, common fine, and many very fine roots; common fine and many very fine tubular pores; slightly effervescent; few medium distinct strong brown (7.5YR 4/6) masses of iron accumulation; slightly alkaline (pH 7.6); clear smooth boundary.
- A2—4 to 10 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine and many very fine tubular pores; many fine distinct dark brown (7.5YR 3/4) and medium prominent yellowish red (5YR 4/6) masses of iron accumulation; neutral (pH 6.6); abrupt smooth boundary.

- C1—10 to 16 inches; very dark gray (10YR 3/1) very fine sandy loam, grayish brown (10YR 5/2) dry; massive; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and common very fine tubular pores; neutral (pH 6.6); abrupt wavy boundary.
- C2—16 to 24 inches; very dark gray (10YR 3/1) very fine sandy loam, grayish brown (10YR 5/2) dry; massive; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and common very fine tubular pores; neutral (pH 6.6); abrupt wavy boundary.
- 2C3—24 to 60 inches; multicolored very gravelly loamy sand; single grain; loose, nonsticky and nonplastic; few fine and common very fine roots; 15 percent cobbles and 35 percent gravel; neutral (pH 6.6).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 24 to 36 inches. Depth to the very gravelly sandy substratum is 20 to 30 inches. A high water table is present in spring and early in summer. Occasional flooding occurs in spring and early in summer.

The A horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 12 to 18 percent clay. It has 0 to 10 percent gravel. It has few to many, fine or medium, and distinct or prominent redoximorphic concentrations. It is neutral or slightly alkaline.

The C horizon has hue of 10YR to 5Y or is gleyed in some pedons. It has value of 2 or 3 moist and 4 or 5 dry and chroma of 0 to 2 moist or dry. It is very fine sandy loam or silt loam with 7 to 12 percent clay. It has 0 to 10 percent gravel.

The 2C horizon is very gravelly loamy sand, gravelly sand, or very gravelly sand with 0 to 7 percent clay. It has 0 to 15 percent cobbles and 25 to 60 percent gravel.

### ***Howmeadows Series***

The Howmeadows series consists of moderately deep, poorly drained soils in narrow drainageways on plateaus or structural benches. These soils formed in mixed loess with minor amounts of volcanic ash over clayey colluvium and residuum derived from basalt. Slopes are 0 to 3 percent. Elevation is 3,400 to 4,500 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Howmeadows silty clay loam in an area of Cowsly-Howmeadows-Sherod complex, 0 to 15 percent slopes, in a meadow in an area of woodland about 7 miles northwest of the town of Wallowa; 1,760 feet east and 600 feet south of the northwest corner of sec. 18, T. 2 N., R. 42 E.

- A—0 to 7 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; strong coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and common very fine roots; few fine and very fine tubular pores; neutral (pH 6.9); abrupt wavy boundary.
- Bt1—7 to 10 inches; dark grayish brown (10YR 4/2) silty clay loam, light brownish gray (10YR 6/2) dry; moderate coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and very fine roots; few fine and very fine tubular pores; common fine faint yellowish brown (10YR 5/4) masses of iron accumulation; neutral (pH 7.0); abrupt smooth boundary.
- 2Bt2—10 to 21 inches; grayish brown (2.5Y 5/2) silty clay, light brownish gray (2.5Y 6/2) dry; moderate coarse subangular blocky structure; very hard, firm, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; continuous prominent clay films in pores and on faces of peds; 5 percent gravel; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation; neutral (pH 7.0); abrupt wavy boundary.
- 2Bt3—21 to 26 inches; light olive brown (2.5Y 5/4) gravelly clay, light yellowish brown

(2.5Y 6/4) dry; moderate medium subangular blocky structure; hard, very firm, very sticky and very plastic; few very fine tubular pores; common distinct clay films on faces of peds; 10 percent cobbles and 20 percent gravel; neutral (pH 7.1); abrupt wavy boundary.

3R—26 inches; basalt.

Depth to bedrock is 20 to 40 inches. The upper part of the profile has hue of 10YR, and the lower part has hue of 2.5Y. Depth to the 2Bt horizon is 6 to 12 inches. The particle-size control section has 35 to 50 percent clay and averages less than 35 percent rock fragments throughout. A high water table is present in spring and early in summer. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is silty clay loam with 27 to 35 percent clay. It has 0 to 5 percent gravel.

The Bt horizon has value of 3 to 5 moist and 4 to 7 dry, and it has chroma of 2 to 4 moist or dry. It is silty clay loam or clay with 35 to 45 percent clay. It has 0 to 10 percent gravel. It has common or many redoximorphic concentrations.

The 2Bt horizon has value of 3 to 5 moist and 3 to 7 dry, and it has chroma of 2 to 4 moist or dry. It is gravelly clay loam, silty clay, or gravelly clay with 35 to 50 percent clay. It has 0 to 30 percent cobbles and 5 to 25 percent gravel.

## ***Hurwal Series***

The Hurwal series consists of deep and very deep, well drained soils on hills. These soils formed in loess with an influence of volcanic ash in the upper part (fig. 21). Slopes are 2 to 60 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 13 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Hurwal silt loam, 15 to 30 percent north slopes, in a cultivated area about 5 miles east of the town of Wallowa; 800 feet north and 300 feet west of the southeast corner of sec. 10, T. 1 N., R. 43 E.

Ap—0 to 12 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common irregular pores; slightly acid (pH 6.3); clear wavy boundary.

A—12 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; many black krotovinas; neutral (pH 6.6); clear wavy boundary.

BA—18 to 27 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 4/3) dry; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; many krotovinas; neutral (pH 6.7); clear wavy boundary.

Bt1—27 to 36 inches; dark yellowish brown (10YR 3/4) silty clay loam, brown (10YR 4/3) dry; moderate coarse prismatic structure parting to weak fine subangular blocky; hard, friable, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; common faint clay films on faces of peds; many krotovinas; neutral (pH 6.7); clear wavy boundary.

Bt2—36 to 56 inches; dark yellowish brown (10YR 4/4) silty clay loam, yellowish brown (10YR 5/4) dry; weak coarse prismatic structure parting to moderate fine subangular blocky; hard, firm, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; many faint clay films on faces of peds; many krotovinas; neutral (pH 7.2); clear wavy boundary.

BC—56 to 58 inches; dark yellowish brown (10YR 4/4) silt loam, yellowish brown





**Figure 21.—Typical pedon of a Hurwal soil that formed in loess with an influence of volcanic ash in the upper part. This soil is on north-facing slopes of hills.**

(10YR 5/4) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; slightly effervescent; 10 percent gravel; many krotovinas; moderately alkaline (pH 8.0); abrupt wavy boundary.

2R—58 inches; basalt.

Depth to bedrock is commonly 40 to 60 inches, but in some pedons it is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. The upper 12 to 20 inches of the profile is influenced by volcanic ash.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 18 to 27 percent clay. It has 0 to 5 percent gravel. It is slightly acid or neutral.

The BA and Bt horizons have value of 3 or 4 moist and 4 or 5 dry, and they have chroma of 3 or 4 moist or dry. They are silt loam or silty clay loam with 20 to 35 percent clay. They are 0 to 5 percent gravel. They are neutral or slightly alkaline.

The BC horizon, where present, has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is gravelly silt loam, silt loam, or loam with 20 to 27 percent clay. It has 0 to 10 percent cobbles and 0 to 15 percent gravel. Secondary calcium carbonate is in some pedons. The horizon has 0 to 5 percent calcium carbonate equivalent. It is neutral to moderately alkaline.

### ***Imnaha Series***

The Imnaha series consists of moderately deep, well drained soils in canyons and on plateaus and structural benches. These soils formed in mixed volcanic ash and loess over colluvium and residuum derived from basalt. Slopes are 2 to 90 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 15 to 30 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Imnaha gravelly silt loam in an area of Cherrycreek-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes, in an area of rangeland about 20 miles east of Joseph, along the Imnaha River; 240 feet south and 1,580 feet east of the northwest corner of sec. 34, T. 2 S., R. 48 E.

A1—0 to 5 inches; black (10YR 2/1) gravelly silt loam, very dark grayish brown (10YR 3/2) dry; weak medium subangular blocky structure parting to moderate fine granular; soft, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine irregular pores; 5 percent cobbles and 10 percent gravel; neutral (pH 6.7); clear wavy boundary.

A2—5 to 17 inches; very dark gray (10YR 3/1) gravelly silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and fine and few medium roots; few fine irregular and tubular pores; 5 percent cobbles and 15 percent gravel; neutral (pH 6.7); clear wavy boundary.

Bt1—17 to 21 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few fine tubular pores; common faint clay films on faces of peds; 10 percent cobbles and 25 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

Bt2—21 to 24 inches; dark brown (10YR 3/3) very gravelly loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; many faint and few distinct clay films on faces of peds; 10 percent cobbles and 30 percent gravel; slightly acid (pH 6.5); abrupt irregular boundary.

R—24 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 20 to 30 inches. The upper 12 to 20 inches of the profile is influenced by volcanic ash. Depth to the argillic horizon is 12 to 20 inches. The particle-size control section averages 35 to 75 percent rock fragments and 18 to 35 percent clay. The profile has hue of 10YR or 7.5YR throughout.

The A1 horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 to 3 moist and 2 or 3 dry. It is gravelly silt loam with 10 to 18 percent clay. It has 15 to 30 percent total rock fragment content, with 0 to 5 percent stones, 5 to 10 percent cobbles, and 10 to 25 percent gravel. It is moderately acid to neutral.

The A2 horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 to 3 moist and 2 or 3 dry. It is gravelly silt loam, very gravelly silt loam, very cobbly silt loam, or gravelly loam with 10 to 18 percent clay. It has 15 to 45 percent total rock fragment content, with 0 to 5 percent stones, 5 to 20 percent cobbles, and 10 to 30 percent gravel. It is moderately acid to neutral.

The Bt horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 to 4 moist or dry. It is very gravelly loam, very gravelly silt loam, very cobbly loam, extremely stony loam, or very gravelly clay loam with 18 to 35 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 20 percent stones, 10 to 20 percent cobbles, and 25 to 40 percent gravel. It is slightly acid or neutral.

### ***Josset Series***

The Josset series consists of very deep, moderately well drained soils on flood plains. These soils formed in mixed alluvium (fig. 22). Slopes are 0 to 2 percent.



Figure 22.—Typical pedon of a Josset soil that formed in loamy alluvium over sandy alluvium and is high in content of rounded gravel and cobbles. This soil is on slightly convex, high flood plains.



Elevation is 3,400 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Josset loam, 0 to 2 percent slopes, in an area of native pasture about 1 mile west of Enterprise; 1,220 feet east and 1,970 feet south of the northwest corner of sec. 3, T. 2 S., R. 44 E.

A1—0 to 4 inches; very dark brown (10YR 2/2) loam, very dark grayish brown (10YR 3/2) dry; weak thin platy structure parting to moderate fine and medium granular; slightly hard, friable, slightly sticky and nonplastic; many fine roots; many irregular pores; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—4 to 11 inches; very dark brown (10YR 2/2) loam, very dark grayish brown (10YR 3/2) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many fine roots; many very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

C1—11 to 22 inches; very dark grayish brown (10YR 3/2) fine sandy loam, dark grayish brown (10YR 4/2) dry; massive; soft, very friable, nonsticky and nonplastic; common fine roots; strongly effervescent; 5 percent gravel; moderately alkaline (pH 8.0); gradual wavy boundary.

2C2—22 to 60 inches; multicolored very gravelly sand; single grain; loose, nonsticky and nonplastic; 50 percent gravel; coatings of calcium carbonate on bottom of gravel; moderately alkaline (pH 8.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. Depth to the very gravelly substratum is 20 to 36 inches. The upper part of the particle-size control section is loam or fine sandy loam with 10 to 18 percent clay. The lower part is very gravelly or extremely gravelly sand or loamy sand with 35 to 65 percent gravel. A high water table is present in winter through early in spring. Occasional flooding occurs in winter and spring. The profile is slightly alkaline or moderately alkaline and is calcareous throughout.

The A horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 2 or 3 moist or dry. It has 0 to 5 percent gravel. It is loam with 10 to 18 percent clay. It has 1 to 2 percent calcium carbonate equivalent.

The C1 horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 2 or 3 moist or dry. It is loam, gravelly fine sandy loam, or fine sandy loam with 10 to 18 percent clay. It has 0 to 20 percent gravel. It has 1 to 2 percent calcium carbonate equivalent.

The 2C2 horizon is very gravelly sand, extremely gravelly sand, or very gravelly loamy sand with 0 to 10 percent clay. It has 0 to 10 percent cobbles and 35 to 65 percent gravel.

## ***Kahler Series***

The Kahler series consists of very deep, well drained soils on backslopes of canyons. These soils formed in colluvium derived from basalt mixed with volcanic ash and loess in the upper part. Slopes are 30 to 90 percent. Elevation is 2,800 to 5,400 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Kahler silt loam in an area of Kahler-Linecreek-Getaway complex, 30 to 60 percent north slopes, in an area of woodland about 20 miles east of Joseph, along the Imnaha River; 240 feet north and 1,580 feet east of the southwest of the corner of sec. 27, T. 2 S., R. 48 E.

A1—0 to 5 inches; very dark brown (10YR 2/2) silt loam, very dark grayish brown (10YR 3/2) dry; moderate very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots;

common fine irregular pores; 10 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

A2—5 to 27 inches; very dark gray (10YR 3/1) silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and few medium tubular pores and few fine irregular pores; 10 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.

Bw1—27 to 40 inches; very dark grayish brown (10YR 3/2) gravelly loam, dark grayish brown (10YR 4/2) dry; weak coarse subangular blocky structure parting to moderate fine and medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine irregular pores and few fine tubular pores; 5 percent cobbles and 25 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

Bw2—40 to 44 inches; dark brown (10YR 3/3) gravelly loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine tubular pores; 5 percent cobbles and 25 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.

Bw3—44 to 61 inches; brown (10YR 4/3) gravelly silty clay loam, yellowish brown (10YR 5/4) dry; moderate fine subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine tubular pores; 5 percent cobbles and 20 percent gravel; slightly acid (pH 6.5).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 24 to 34 inches. The upper 24 to 34 inches of the profile is influenced by volcanic ash. The particle-size control section averages 10 to 30 percent rock fragments and 18 to 35 percent clay. The profile is moderately acid to neutral throughout.

The A1 horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 or 2 moist and 2 or 3 dry. It is silt loam with 15 to 27 percent clay. It has 0 to 2 percent stones, 0 to 5 percent cobbles, and 0 to 10 percent gravel.

The A2 horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist and 2 or 3 dry. It is silt loam or loam with 20 to 27 percent clay. It has 0 to 2 percent stones, 0 to 5 percent cobbles, and 0 to 10 percent gravel.

The Bw horizon has value of 3 or 4 moist and 4 to 6 dry, and it has chroma of 2 to 4 moist or dry. It is gravelly loam, loam, gravelly silty clay loam, or gravelly clay loam with 18 to 35 percent clay. It has 0 to 30 percent total rock fragment content, with 0 to 2 percent stones, 0 to 5 percent cobbles, and 10 to 25 percent gravel.

## ***Kamela Series***

The Kamela series consists of moderately deep, well drained soils on backslopes of canyons. These soils formed in colluvium derived from basalt mixed with volcanic ash and loess in the upper part. Slopes are 30 to 90 percent. Elevation is 3,000 to 6,200 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Kamela gravelly loam in an area of Anatone-Kamela complex, 30 to 60 percent slopes, in an area of woodland; about 50 feet west and 1,600 feet south of the northeast corner of sec. 14, T. 4 S., R. 46 E.

Oi—1 inch to 0; partially decomposed needles and twigs.

A—0 to 8 inches; dark yellowish brown (10YR 3/4) gravelly loam, dark yellowish brown (10YR 4/4) dry; moderate fine subangular blocky structure; soft, very

friable, slightly sticky and slightly plastic; few fine and common very fine roots; common very fine tubular pores; 5 percent cobbles and 15 percent gravel; neutral (pH 6.6); clear wavy boundary.

Bw—8 to 22 inches; brown (10YR 4/3) very cobbly loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; few very fine roots; few very fine tubular pores; 30 percent cobbles and 20 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

2R—22 inches; basalt.

Depth to bedrock is 20 to 40 inches. The upper 7 to 14 inches of the profile is influenced by highly mixed volcanic ash. The particle-size control section averages 35 to 75 percent rock fragments and 18 to 27 percent clay.

The A horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 to 6 dry, and chroma of 2 to 4 moist or dry. It is gravelly loam with 12 to 20 percent clay. It has 15 to 35 percent total rock fragment content, with 0 to 3 percent stones, 0 to 10 percent cobbles, and 15 to 25 percent gravel. It is moderately acid to neutral.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 or 5 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is very cobbly loam, very gravelly silt loam, or very cobbly silt loam with 18 to 27 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 15 percent stones, 5 to 30 percent cobbles, and 10 to 35 percent gravel. It is moderately acid or slightly acid.

### ***Kettenbach Series***

The Kettenbach series consists of moderately deep, well drained soils on south- and west-facing backslopes and footslopes of canyons. These soils formed in a mixture of loess and colluvium derived from basalt. Slopes are 15 to 90 percent. Elevation is 800 to 4,000 feet. The mean annual precipitation is 15 to 24 inches, and the mean annual air temperature is 45 to 51 degrees F.

Typical pedon of Kettenbach very cobbly loam in an area of Gwin-Kettenbach-Rock outcrop complex, 30 to 60 percent south slopes, in an area of rangeland about 36 miles north of Enterprise, along the east fork of Tamarack Creek; 1,900 feet east and 300 feet north of the southwest corner of sec. 6, T. 5 N., R. 46 E.

A—0 to 8 inches; very dark brown (10YR 2/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; weak fine and medium granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and few fine irregular pores; 1 percent stones, 30 percent cobbles, and 15 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

BA—8 to 16 inches; very dark grayish brown (10YR 3/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; common faint clay films in root channels; 30 percent cobbles and 20 percent gravel; neutral (pH 6.6); gradual wavy boundary.

Bt—16 to 24 inches; dark brown (10YR 3/3) very cobbly clay loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; few very fine tubular pores; common faint clay films on faces of peds; 20 percent cobbles and 35 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

2R—24 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 20 to 30

inches. The particle-size control section has 27 to 35 percent clay and 35 to 80 percent total rock fragment content. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 2 or 3 moist or dry. It is very cobbly loam with 20 to 27 percent clay. It has 0 to 5 percent stones, 20 to 30 percent cobbles, and 15 to 20 percent gravel.

The BA horizon has value of 3 or 4 dry and chroma of 2 or 3 moist or dry. It is very cobbly silt loam, cobbly loam, very cobbly loam, or cobbly clay loam with 20 to 30 percent clay. It has 10 to 30 percent cobbles and 5 to 20 percent gravel.

The Bt horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very cobbly clay loam, extremely cobbly clay loam, or very cobbly silty clay loam with 27 to 35 percent clay. It has 20 to 40 percent cobbles and 15 to 40 percent gravel.

### ***Klicker Series***

The Klicker series consists of moderately deep, well drained soils on hills, mountains, canyons, plateaus, and structural benches. These soils formed in loess and colluvium derived from basalt with an influence of volcanic ash in the upper part. Slopes are 0 to 90 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 15 to 35 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Klicker stony silt loam in an area of Klicker-Anatone complex, 15 to 30 percent south slopes, in an area of woodland; about 2,600 feet east and 1,000 feet north of the southwest corner of sec. 36, T. 2 N., R. 44 E.

Oi—1 inch to 0; mostly undecomposed pine needles.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) stony silt loam, brown (10YR 4/3) dry; moderate fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; common medium and few fine roots; many very fine irregular pores; 10 percent stones, 10 percent cobbles, and 5 percent gravel; slightly acid (pH 6.2); clear wavy boundary.

A2—3 to 10 inches; dark brown (10YR 3/3) cobbly silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and few coarse roots; many very fine tubular pores; 15 percent cobbles and 10 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

Bt1—10 to 18 inches; dark brown (7.5YR 3/4) very cobbly silty clay loam, yellowish brown (10YR 5/4) dry; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine and coarse roots; common very fine and fine tubular pores; few faint clay films on faces of peds; 25 percent cobbles and 15 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

Bt2—18 to 24 inches; dark brown (7.5YR 3/4) extremely cobbly silty clay loam, yellowish brown (10YR 5/4) dry; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and coarse roots; common very fine and fine and few medium tubular pores; common faint clay films on faces of peds; 50 percent cobbles and 20 percent gravel; slightly acid (pH 6.5); abrupt wavy boundary.

2R—24 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 10 to 20 inches.

The A horizon has hue of 5YR, 7.5YR, or 10YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. The A1 horizon is silt loam, gravelly silt loam, or stony silt loam with 18 to 27 percent clay. The A2 horizon is very cobbly silt loam,

cobbly silt loam, very gravelly silt loam, or gravelly silt loam. The A horizon has 0 to 10 percent stones, 0 to 25 percent cobbles, and 5 to 25 percent gravel. It is neutral or slightly acid.

The Bt horizon has hue of 5YR, 7.5YR, or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 2 to 4 moist or dry. It is extremely cobbly silty clay loam, very cobbly silty clay loam, or extremely cobbly clay loam with 27 to 35 percent clay. It has 35 to 70 percent total rock fragment content, with 0 to 30 percent stones, 25 to 50 percent cobbles, and 10 to 20 percent gravel.

### ***Klickson Series***

The Klickson series consists of very deep, well drained soils in north-facing canyons. These soils formed in colluvium derived from basalt with a mixture of loess and volcanic ash in the upper part. Slopes are 15 to 90 percent. Elevation is 800 to 5,300 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Klickson very gravelly loam in an area of Klickson-Anatone-Larabee complex, 60 to 90 percent north slopes, in an area of woodland about 40 miles north of Enterprise, along Cache Creek; 1,900 feet east and 660 feet north of the southwest corner of sec. 33, T. 6 N., R. 47 E.

Oi—1 inch to 0; partially decomposed twigs, needles, and moss.

A—0 to 6 inches; very dark brown (10YR 2/2) very gravelly loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; many very fine and common fine irregular pores; 5 percent cobbles and 35 percent gravel; neutral (pH 6.7); gradual smooth boundary.

AB—6 to 18 inches; very dark grayish brown (10YR 3/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; many very fine and common fine tubular pores; 25 percent cobbles and 25 percent gravel; neutral (pH 6.7); abrupt wavy boundary.

Bt1—18 to 38 inches; dark brown (10YR 3/3) very cobbly clay loam, brown (10YR 5/3) dry; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and slightly plastic; few very fine, fine, medium, and coarse roots; few very fine tubular pores; few faint clay films on faces of peds; 5 percent stones, 30 percent cobbles, and 15 percent gravel; neutral (pH 6.8); gradual wavy boundary.

Bt2—38 to 66 inches; dark yellowish brown (10YR 3/4) very cobbly clay loam, yellowish brown (10YR 5/4) dry; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few very fine tubular pores; few faint clay films on faces of peds; 5 percent stones, 20 percent cobbles, and 20 percent gravel; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. The dark color extends to a depth of more than 20 inches, but the organic matter content is less than 1 percent. The upper 10 to 20 inches is influenced by volcanic ash. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 2 or 3 moist or dry. It is very gravelly loam with 15 to 20 percent clay. It has 0 to 10 percent cobbles and 25 to 35 percent gravel.



The AB horizon has color similar to that of the A horizon. It has 15 to 25 percent cobbles and 10 to 25 percent gravel.

The Bt horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 3 or 4 moist or dry. It is loam or clay loam with 18 to 35 percent clay. It has 40 to 60 percent total rock fragment content, with 0 to 10 percent stones, 20 to 35 percent cobbles, and 10 to 25 percent gravel.

### ***Langrell Series***

The Langrell series consists of very deep, well drained soils on stream terraces and outwash terraces in mountain valleys. These soils formed in glaciofluvial deposits. Slopes are 0 to 3 percent. Elevation is 2,000 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Langrell gravelly loam, 0 to 3 percent slopes, in a cultivated area about 3.5 miles southeast of the town of Wallowa; 1,760 feet north and 1,760 feet west of the southeast corner of sec. 30, T. 1 N., R. 43 E.

Ap—0 to 9 inches; very dark gray (10YR 3/1) gravelly loam, gray (10YR 5/1) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and many very fine roots; common very fine irregular pores; 20 percent gravel; neutral (pH 7.3); abrupt wavy boundary.

Bw1—9 to 20 inches; very dark grayish brown (10YR 3/2) gravelly loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 20 percent gravel; neutral (pH 7.3); clear wavy boundary.

2Bw2—20 to 32 inches; very dark grayish brown (10YR 3/2) very gravelly loam, grayish brown (10YR 5/2) dry; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; 35 percent gravel; neutral (pH 7.1); clear wavy boundary.

2Bw3—32 to 50 inches; very dark grayish brown (10YR 3/2) extremely cobbly sandy loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; coatings of calcium carbonate on the underside of rock fragments in the lower part; 35 percent cobbles and 35 percent gravel; slightly alkaline (pH 7.8); abrupt wavy boundary.

3C—50 to 60 inches; very dark gray (10YR 3/1) extremely gravelly coarse sandy loam, gray (10YR 5/1) dry; single grain; loose, nonsticky and nonplastic; few coatings of calcium carbonate on rock fragments; 15 percent cobbles and 50 percent gravel; slightly alkaline (pH 7.8).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. The particle-size control section has 8 to 18 percent clay and averages 35 to 60 percent rock fragments. In some pedons, coatings of calcium carbonate are on the underside of rock fragments at a depth of 30 inches or more.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 to 3 moist or dry. It is gravelly loam with 8 to 18 percent clay. It has 0 to 10 percent cobbles and 15 to 30 percent gravel.

The Bw1 horizon has color similar to that of the A horizon. It is gravelly loam or cobbly loam with 8 to 18 percent clay. It has 0 to 2 percent stones, 0 to 20 percent cobbles, and 15 to 30 percent gravel.

The 2Bw horizon has value of 2 to 4 moist and 4 to 6 dry, and it has chroma of 1 to

3 moist or dry. The 2Bw2 horizon is very cobbly loam, extremely cobbly loam, very gravelly loam, very cobbly sandy loam, or very gravelly sandy loam with 8 to 18 percent clay. The 2Bw3 horizon is extremely cobbly sandy loam, extremely gravelly sandy loam, extremely gravelly loamy sand, or extremely cobbly loamy sand. It has 35 to 80 percent total rock fragment content, with 0 to 10 percent stones, 0 to 35 percent cobbles, and 20 to 35 percent gravel. The 2Bw horizon is neutral or slightly alkaline.

The 3C horizon has value of 3 or 4 moist and 4 to 6 dry, and it has chroma of 1 or 2 moist or dry. It is extremely gravelly sandy loam, extremely cobbly sandy loam, extremely gravelly coarse sandy loam, or extremely cobbly loamy sand with 8 to 18 percent clay. It has 60 to 85 percent total rock fragment content, with 0 to 15 percent stones, 15 to 40 percent cobbles, and 25 to 50 percent gravel. The horizon is neutral or slightly alkaline.

### ***Larabee Series***

The Larabee series consists of moderately deep, well drained soils on plateaus and in canyons. These soils formed in colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part. Slopes are 0 to 90 percent. Elevation is 2,800 to 5,400 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Larabee silt loam in an area of Klickson-Anatone-Larabee complex, 60 to 90 percent north slopes, in an area of woodland about 41 miles north of Enterprise, along Horse Creek; 1,000 feet west and 500 feet north of the southeast corner of sec. 29, T. 6 N., R. 47 E.

Oi—4 inches to 0; partially decomposed roots, moss, and twigs.

A1—0 to 12 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common very fine and few fine irregular pores; 5 percent gravel; neutral (pH 6.7); clear smooth boundary.

A2—12 to 20 inches; very dark brown (10YR 2/2) gravelly silt loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine and few fine tubular pores; 5 percent cobbles and 15 percent gravel; neutral (pH 6.8); abrupt smooth boundary.

Bt—20 to 36 inches; brown (10YR 4/3) very cobbly loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; common faint clay films on rock fragments and faces of peds; 25 percent cobbles and 20 percent gravel; neutral (pH 6.7); abrupt wavy boundary.

2R—36 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 10 to 20 inches. The upper 10 to 20 inches is influenced by volcanic ash. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. The upper part is silt loam with 18 to 25 percent clay, and the lower part is silt loam or gravelly silt loam with 20 to 27 percent clay. The horizon has 0 to 5 percent cobbles and 5 to 15 percent gravel. It has 5 to 10 percent volcanic glass.

The Bt horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is very cobbly loam, extremely gravelly silt loam, or very cobbly clay loam with 25 to 35 percent clay. It has 45 to 65 percent total rock fragment content, with 20 to 35 percent cobbles and 20 to 50 percent gravel.



### ***Laufer Series***

The Laufer series consists of shallow, well drained soils on structural benches and in canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 2 to 90 percent. Elevation is 900 to 4,000 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Laufer very stony silt loam in an area of Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes, in an area of rangeland about 1.5 miles northeast of Troy; 1,400 feet north and 1,200 feet east of the southwest corner of sec. 34, T. 6 N., R 43 E.

- A—0 to 4 inches; very dark brown (10YR 2/2) very stony silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular and irregular pores; 15 percent stones, 15 percent cobbles, and 10 percent gravel; neutral (pH 6.8); clear wavy boundary.
- AB—4 to 8 inches; very dark brown (10YR 2/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) dry; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; 20 percent cobbles and 15 percent gravel; neutral (pH 6.8); gradual wavy boundary.
- Bt1—8 to 11 inches; very dark brown (10YR 2/2) very cobbly clay, dark grayish brown (10YR 4/2) dry; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; common faint clay films on faces of peds and in pores; 25 percent cobbles and 15 percent gravel; neutral (pH 6.8); abrupt wavy boundary.
- Bt2—11 to 16 inches; dark brown (10YR 3/3) very cobbly clay, brown (10YR 4/3) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; few faint clay films on faces of peds and in pores; 40 percent cobbles and 15 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
- 2R—16 inches; basalt.

Depth to bedrock is 10 to 20 inches. The mollic epipedon is 10 to 20 inches thick, and it includes all of the argillic horizon. Depth to the argillic horizon is 6 to 10 inches. The particle-size control section averages 45 to 70 percent angular basalt fragments and 35 to 40 percent clay. The profile is neutral or slightly alkaline throughout.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 3 moist and 3 to 5 dry, and chroma of 1 to 3 moist or dry. It is very stony silt loam with 20 to 27 percent clay. It has 15 to 35 percent stones, 10 to 25 percent cobbles, and 10 to 20 percent gravel.

The AB horizon, where present, has color similar to that of the A horizon. It is very cobbly silty clay loam, very cobbly clay loam, or very gravelly clay loam with 27 to 35 percent clay. It has 0 to 5 percent stones, 15 to 25 percent cobbles, and 10 to 35 percent gravel.

The Bt horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist or dry. It is very cobbly clay, very cobbly clay loam, or extremely cobbly clay loam with 35 to 45 percent clay. It has 0 to 10 percent stones, 20 to 45 percent cobbles, and 10 to 20 percent gravel.

### ***Lawyer Series***

The Lawyer series consists of deep, well drained soils in north-facing canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 15 to 90

percent. Elevation is 1,400 to 3,300 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Lawyer stony silt loam in an area of Lawyer-Gwinly complex, 40 to 90 percent north slopes, about 6 miles east of Anatone, taken from a similar matching physiographic area in Asotin County Area, Oregon, adjacent to Wallowa County Area, Oregon, because of the limited acreage in this survey area; 1,100 feet west and 1,300 feet north of the southeast corner of sec. 23, T. 8 N., R. 56 E.

- A1—0 to 4 inches; black (10YR 2/1) stony silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 10 percent stones and 5 percent gravel; neutral (pH 6.6); clear wavy boundary.
- A2—4 to 11 inches; black (10YR 2/1) gravelly silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and few medium roots; many very fine irregular pores; 5 percent cobbles and 15 percent gravel; neutral (pH 6.7); clear wavy boundary.
- Bat—11 to 16 inches; very dark brown (10YR 2/2) very gravelly clay loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and few medium roots; many very fine irregular pores and few very fine tubular pores; many faint stress cutans and clay films on faces of peds; 5 percent stones, 10 percent cobbles, and 25 percent gravel; neutral (pH 6.8); clear wavy boundary.
- Bt1—16 to 23 inches; very dark grayish brown (10YR 3/2) very gravelly clay loam, brown (10YR 4/3) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine roots; many very fine irregular pores and few very fine tubular pores; continuous faint stress cutans and clay films on faces of peds; 5 percent stones, 10 percent cobbles, and 30 percent gravel; neutral (pH 6.9); clear wavy boundary.
- Bt2—23 to 35 inches; very dark grayish brown (10YR 3/2) very cobbly clay loam, brown (10YR 4/3) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; many very fine irregular pores and few fine tubular pores; continuous distinct stress cutans and clay films on faces of peds; 25 percent cobbles and 25 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bt3—35 to 44 inches; dark brown (10YR 3/3) very cobbly clay, brown (10YR 5/3) dry; moderate medium subangular blocky structure; common very fine roots; common very fine irregular pores; continuous distinct stress cutans and clay films on faces of peds; 30 percent cobbles and 25 percent gravel; neutral (pH 7.1); abrupt irregular boundary.
- 2R—44 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 20 to 40 inches. Depth to the clayey Bt3 horizon is 35 to 52 inches. The profile is slightly acid or neutral throughout.

The A1 horizon has value of 3 or 4 dry and chroma of 1 or 2 moist or dry. It is stony silt loam or silt loam with 20 to 27 percent clay. It has 0 to 15 percent stones, 0 to 5 percent cobbles, and 0 to 15 percent gravel.

The A2 horizon has color similar to that of the A1 horizon. The A2 horizon is silt loam, gravelly silt loam, gravelly loam, or cobbly loam with 20 to 27 percent clay. It has 0 to 5 percent stones, 5 to 20 percent cobbles, and 5 to 25 percent gravel.

The BA<sub>t</sub> and B<sub>t</sub> horizons have hue of 10YR or 7.5YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. The BA<sub>t</sub> horizon and the upper part of the B<sub>t</sub> horizon are very gravelly or very cobbly clay loam with 30 to 35 percent clay and 35 to 60 percent rock fragments. They have 0 to 5 percent stones, 10 to 30 percent cobbles, and 20 to 40 percent gravel. The lower part of the B<sub>t</sub> horizon is very cobbly clay, very gravelly clay loam, extremely cobbly clay, or extremely gravelly clay loam with 35 to 50 percent clay. It has 0 to 5 percent stones, 15 to 40 percent cobbles, and 20 to 60 percent gravel. Some pedons are moderately alkaline and have secondary calcium carbonate below a depth of 44 inches.

### ***Lickskillet Series***

The Lickskillet series consists of shallow, well drained soils on structural benches and plateaus and in canyons. These soils formed in colluvium and residuum derived from basalt. Slopes are 2 to 90 percent. Elevation is 1,800 to 4,000 feet. The mean annual precipitation is 12 to 20 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Lickskillet very cobbly loam in an area of Lickskillet-Dixiejett-Rock outcrop complex, 60 to 90 percent south slopes, in an area of rangeland about 23 miles east of Enterprise, along the Imnaha River; 2,640 feet north and 960 feet east of the southeast corner of sec. 3, T. 1 S., R. 48 E.

A—0 to 7 inches; very dark grayish brown (10YR 3/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine and few medium roots; common fine irregular pores; 10 percent stones, 25 percent cobbles, and 20 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

Bw—7 to 19 inches; brown (10YR 4/3) extremely cobbly loam, dark yellowish brown (10YR 4/4) dry; weak very fine and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and common fine roots; few fine tubular pores; 10 percent stones, 35 percent cobbles, and 25 percent gravel; moderately alkaline (pH 8.0); abrupt irregular boundary.

R—19 inches; Imnaha basalt.

Depth to bedrock is 12 to 20 inches. Thickness of the mollic epipedon is 7 to 11 inches. The profile has hue of 10YR or 7.5YR. The particle-size control section averages 35 to 85 percent rock fragments and 18 to 27 percent clay. Some pedons have coatings of secondary carbonates on the underside of rock fragments and extending into cracks in the underlying bedrock.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very cobbly loam with 10 to 20 percent clay. It has 35 to 60 percent total rock fragment content, with 5 to 10 percent stones, 20 to 30 percent cobbles, and 10 to 20 percent gravel. It is slightly acid to moderately alkaline. The organic matter content is 1 to 2 percent.

The Bw horizon has value of 3 to 5 moist and 4 to 6 dry, and it has chroma of 3 or 4 moist or dry. It is extremely cobbly loam or very cobbly sandy loam with 18 to 27 percent clay. It has 35 to 80 percent total rock fragment content, with 5 to 15 percent stones, 20 to 35 percent cobbles, and 15 to 25 percent gravel. It is neutral to moderately alkaline.

Some pedons have a thin B<sub>tk</sub> or B<sub>t</sub> horizon with clay films on some rock fragments, in pores, and extending into the fractures in the underlying bedrock.

## ***Limberjim Series***

The Limberjim series consists of deep, well drained soils on mountains, structural benches, and plateaus and in canyons. These soils formed in volcanic ash over colluvium and residuum derived from basalt or andesitic tuff breccia. Slopes are 0 to 90 percent. Elevation is 2,800 to 5,800 feet. The mean annual precipitation is 20 to 40 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Limberjim silt loam in an area of Limberjim-Syrupcreek complex, 15 to 30 percent north slopes, in an area of woodland about 2 miles southwest of Joseph; 1,500 feet south and 1,000 feet west of the northeast corner of sec. 12, T. 3 S., R. 44 E.

Oi—1 inch to 0; partially decomposed twigs and small branches.

A—0 to 5 inches; dark yellowish brown (10YR 4/4) silt loam, yellowish brown (10YR 5/4) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; few fine and common very fine irregular pores; moderately acid (pH 5.9); clear smooth boundary.

Bw—5 to 15 inches; dark yellowish brown (10YR 4/4) silt loam, very pale brown (10YR 7/4) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few coarse and fine and common very fine roots; few fine and common very fine tubular pores; slightly acid (pH 6.1); abrupt smooth boundary.

2Eb—15 to 20 inches; dark yellowish brown (10YR 3/4) gravelly silt loam, light yellowish brown (10YR 6/4) dry; moderate medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few coarse, medium, and fine and common very fine roots; few fine and very fine tubular pores; 10 percent cobbles and 20 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

2Btb—20 to 41 inches; dark yellowish brown (10YR 3/4) very cobbly clay loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few fine and very fine roots; few very fine tubular pores; many faint clay films on faces of peds; 10 percent stones, 25 percent cobbles, and 10 percent gravel; moderately acid (pH 6.0); abrupt wavy boundary.

2R—41 inches; basalt.

Depth to bedrock is 40 to 60 inches. Depth to the argillic horizon and thickness of the volcanic ash mantle are 14 to 28 inches. The upper 14 to 28 inches of the particle-size control section averages 0 to 15 percent rock fragments, 5 to 12 percent clay, and 25 to 45 percent volcanic glass. The lower 12 to 26 inches averages 40 to 75 percent rock fragments and 18 to 30 percent clay. The profile is moderately acid to neutral throughout.

The A horizon has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 to 8 dry, and chroma of 2 to 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The AB horizon, where present, has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 to 8 dry, and chroma of 2 to 4 moist or dry. It is silt loam or very fine sandy loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 to 7 moist and 6 to 8 dry, and chroma of 2 to 4 moist or dry. It is very fine sandy loam, silt loam, or loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The 2Eb horizon has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is gravelly silt loam, silt loam, or loam with 18 to 25 percent clay. It has 10 to 35 percent total rock fragment content, with 0 to 5 percent stones, 0 to 10 percent cobbles, and 10 to 20 percent gravel.

The 2Btb horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 3 or 4 moist or dry. It is very gravelly silt loam, very gravelly loam, very gravelly clay loam, extremely gravelly clay loam, or very cobbly clay loam with 20 to 30 percent clay. It has 35 to 80 percent total rock fragment content, with 0 to 10 percent stones, 0 to 30 percent cobbles, and 10 to 50 percent gravel.

### ***Linecreek Series***

The Linecreek series consists of very deep, well drained soils on hills and in canyons. These soils formed in colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part. Slopes are 30 to 90 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 17 to 35 inches, and the mean annual air temperature is 42 to 44 degrees F.

Typical pedon of Linecreek extremely cobbly loam in an area of Anatone-Linecreek-Rock outcrop complex, 60 to 90 percent south slopes, in an area of woodland about 24 miles east of Enterprise, along the Imnaha River; 720 feet north and 1,440 feet east of the southwest corner of sec. 36, T. 1 S., R. 48 E.

- A1—0 to 9 inches; very dark grayish brown (10YR 3/2) extremely cobbly loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine and few medium irregular pores; 5 percent stones, 25 percent cobbles, and 45 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.
- A2—9 to 22 inches; very dark grayish brown (10YR 3/2) extremely gravelly fine sandy loam, dark grayish brown (10YR 4/2) dry; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common fine, medium, and coarse roots; common fine irregular pores; 5 percent stones, 25 percent cobbles, and 55 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.
- Bw1—22 to 35 inches; dark grayish brown (10YR 4/2) extremely gravelly fine sandy loam, light gray (10YR 7/2) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common fine and few medium and coarse roots; many fine, common medium, and few coarse irregular pores; 5 percent stones, 15 percent cobbles, and 45 percent gravel; neutral (pH 7.3); gradual smooth boundary.
- Bw2—35 to 50 inches; yellowish brown (10YR 5/4) extremely cobbly fine sandy loam, very pale brown (10YR 7/3) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common fine irregular pores; 5 percent stones, 20 percent cobbles, and 40 percent gravel; neutral (pH 7.3); clear smooth boundary.
- 2Bw3—50 to 61 inches; brown (7.5YR 4/4) extremely gravelly loam, brown (7.5YR 5/4) dry; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; common fine irregular pores; 5 percent stones, 15 percent cobbles, and 45 percent gravel; neutral (pH 7.3).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. The particle-size control section averages 40 to 75 percent rock fragments, 5 to 10 percent clay, and 30 to 55 percent volcanic glass.

The A1 horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 to 3 moist or dry. It is extremely cobbly loam with 5 to 15 percent clay. It has 45 to 80 percent total rock fragment content, with 0 to 15 percent stones, 25 to 35 percent cobbles, and 20 to 45 percent gravel. It has 15 to 30 percent volcanic glass. It is slightly acid to slightly alkaline.

The A2 horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 to 3



moist or dry. It is extremely gravelly silt loam, extremely gravelly fine sandy loam, or very cobbly loam with 5 to 15 percent clay. It has 45 to 75 percent total rock fragment content, with 0 to 5 percent stones, 15 to 25 percent cobbles, and 20 to 55 percent gravel. It has 15 to 30 percent volcanic glass. It is slightly acid to slightly alkaline.

The Bw horizon has value of 4 or 5 moist and 5 to 7 dry, and it has chroma of 2 to 4 moist or dry. It is extremely gravelly fine sandy loam, extremely gravelly silt loam, or extremely cobbly fine sandy loam with 5 to 15 percent clay. It has 40 to 75 percent total rock fragment content, with 5 to 15 percent stones, 10 to 35 percent cobbles, and 10 to 45 percent gravel. It has 30 to 60 percent volcanic glass. It is neutral or slightly alkaline.

The 2Bw3 horizon has hue of 10YR or 7.5YR, value of 4 or 5 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is extremely gravelly loam, extremely gravelly sandy loam, or extremely cobbly sandy loam with 15 to 25 percent clay. It has 40 to 75 percent total rock fragment content, with 5 to 15 percent stones, 15 to 35 percent cobbles, and 10 to 45 percent gravel. It is neutral or slightly alkaline.

### ***Linville Series***

The Linville series consists of very deep, well drained soils on north-facing canyons. These soils formed in colluvium derived from basalt and loess with minor amounts of volcanic ash in the upper part. Slopes are 40 to 90 percent. Elevation is 900 to 3,200 feet. The mean annual precipitation is 14 to 17 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Linville silt loam in an area of Matheny-Linville-Laufer complex, 40 to 90 percent north slopes, about 9 miles south of Asotin; taken from a similar matching physiographic area in Asotin County Area, Oregon, adjacent to Wallowa County Area, Oregon, because of the limited acreage in this survey area; 2,200 feet north and 2,400 feet west of the southeast corner of sec. 4, T. 8 N., R. 46 E.

- A1—0 to 5 inches; black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 5 percent gravel; neutral (pH 6.6); clear wavy boundary.
- A2—5 to 18 inches; black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few medium and coarse roots; many very fine irregular pores; 5 percent gravel; neutral (pH 6.6); clear wavy boundary.
- AB—18 to 25 inches; very dark brown (10YR 2/2) cobbly silt loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few coarse roots; common very fine irregular pores; 15 percent cobbles and 5 percent gravel; neutral (pH 6.7); clear wavy boundary.
- Bw1—25 to 38 inches; very dark brown (10YR 2/2) cobbly silt loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine roots; common very fine irregular pores; 20 percent cobbles and 10 percent gravel; neutral (pH 6.9); clear wavy boundary.
- Bw2—38 to 47 inches; very dark brown (10YR 2/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine irregular pores; 30 percent cobbles and 20 percent gravel; neutral (pH 7.1); clear wavy boundary.
- BC—47 to 60 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 5/3) dry;

weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine irregular pores; 30 percent cobbles and 25 percent gravel; slightly alkaline (pH 7.4).

Depth to bedrock is 60 inches or more. The mollic epipedon is 20 to 48 inches thick. The particle-size control section averages 18 to 25 percent clay and less than 35 percent rock fragments.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 15 to 25 percent clay. It has 0 to 5 percent cobbles and 0 to 5 percent gravel.

The AB horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam or cobbly silt loam with 15 to 25 percent clay. It has 5 to 15 percent cobbles and 5 to 20 percent gravel. It is neutral or slightly alkaline.

The Bw horizon has value of 2 to 4 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is cobbly silt loam or very cobbly loam with 20 to 27 percent clay. It has 15 to 35 percent cobbles and 10 to 20 percent gravel. It is neutral or slightly alkaline.

The BC horizon has value of 3 or 4 moist and 4 to 6 dry. It is very cobbly loam, cobbly loam, or cobbly silt loam with 20 to 27 percent clay. It has 15 to 30 percent cobbles and 15 to 35 percent gravel. It is slightly alkaline or moderately alkaline.

### ***Lookingglass Series***

The Lookingglass series consists of very deep, moderately well drained soils on plateaus and structural benches. These soils formed in loess with a minor influence of volcanic ash over clayey residuum or colluvium derived from basalt. Slopes are 2 to 30 percent. Elevation is 1,800 to 4,000 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 45 to 48 degrees F.

Typical pedon of Lookingglass silt loam, 2 to 8 percent slopes, in an area of hay and pasture about 2 miles south of Troy, on Eden Ridge; 1,000 feet south and 1,200 feet east of the northwest corner of sec. 8, T. 5 N., R. 43 E.

Ap1—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common medium roots; many very fine irregular pores; slightly acid (pH 6.4); abrupt wavy boundary.

Ap2—3 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few medium roots; many very fine and few medium tubular pores; slightly acid (pH 6.2); abrupt wavy boundary.

A1—8 to 16 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and common fine tubular pores; slightly acid (pH 6.4); clear wavy boundary.

A2—16 to 22 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine and few medium tubular pores; slightly acid (pH 6.4); abrupt smooth boundary.

E—22 to 23 inches; grayish brown (10YR 5/2) silty clay loam, light brownish gray (10YR 6/2) dry; massive; hard, friable, slightly sticky and slightly plastic; few very fine and medium roots; common very fine tubular pores; few fine black concretions; slightly acid (pH 6.4); abrupt smooth boundary.

2Bt1—23 to 30 inches; dark brown (10YR 3/3) clay, brown (10YR 4/3) dry; moderate



coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and medium roots; common very fine and few fine pores; many prominent clay films on faces of peds; neutral (pH 6.6); clear smooth boundary.

2Bt2—30 to 42 inches; brown (10YR 4/3) clay, pale brown (10YR 6/3) dry; moderate coarse and medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine tubular pores; many distinct clay films on faces of peds; neutral (pH 6.8); gradual wavy boundary.

2C—42 to 60 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; massive; hard, firm, slightly sticky and slightly plastic; common very fine tubular pores; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 24 inches. Depth to the argillic horizon is 12 to 30 inches. A high water table is present in spring. The horizon is slightly acid or neutral throughout.

The Ap and A horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 2 or 3 moist or dry. They are silt loam, cobbly silt loam, or stony silt loam with 18 to 27 percent clay. They have 0 to 20 percent stones, 0 to 15 percent cobbles, and 0 to 5 percent gravel.

The E horizon has value of 4 or 5 moist and 5 to 7 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam or silty clay loam with 18 to 30 percent clay. A stone line is at the lower boundary in some pedons with 0 to 5 percent cobbles and 0 to 10 percent gravel. The horizon has few to common black concretions in some pedons.

The 2Bt horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is silty clay loam, clay, or silty clay with 35 to 50 percent clay. It has 0 to 5 percent cobbles and 0 to 10 percent gravel.

The 2C horizon, where present, has color similar to that of the 2Bt horizon. The 2C horizon is silty clay loam or cobbly silty clay loam with 27 to 35 percent clay. It has 0 to 25 percent cobbles and 0 to 10 percent gravel.

## ***Lostine Series***

The Lostine series consists of very deep, well drained soils on stream terraces of broad outwash plains. These soils formed glaciofluvial outwash mixed with loess and minor amounts of volcanic ash. Slopes are 0 to 3 percent. Elevation is 3,400 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Lostine silt loam, 0 to 3 percent slopes, in a meadow about 18 miles northeast of Enterprise and about 5 miles north of Findley Buttes, along Pine Creek; 500 feet south and 2,400 feet east of the northwest corner of sec. 36, T. 2 N., R. 46 E.

A1—0 to 2 inches; black (10YR 2/1) silt loam, very dark gray (10YR 3/1) dry; moderate medium and fine granular structure; soft, friable, slightly sticky and slightly plastic; many fine and very fine roots; common very fine irregular pores; neutral (pH 6.8); clear smooth boundary.

A2—2 to 12 inches; black (10YR 2/1) silt loam, very dark gray (10YR 3/1) dry; weak medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; few fine and medium tubular pores; neutral (pH 7.2); clear smooth boundary.

Bw—12 to 23 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common very fine and fine tubular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.

BC—23 to 47 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine and few medium tubular pores; neutral (pH 6.8); gradual wavy boundary.

C1—47 to 60 inches; 75 percent brown (10YR 5/3) and 25 percent light yellowish brown (10YR 6/4) silt loam, 75 percent light brownish gray (10YR 6/2) and 25 percent very pale brown (10YR 8/4) dry; massive; slightly hard, friable, moderately sticky and moderately plastic; many very fine and fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.

C2—60 to 65 inches; variegated with matrix color of brown (10YR 4/3) very gravelly sandy loam, brown (10YR 5/3) dry; massive; slightly hard, friable, nonsticky and nonplastic; 10 percent coarse gravel and 35 percent fine gravel; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 45 inches. Depth to very gravelly loam or sandy loam is more than 40 inches. The particle-size control section is silt loam with an estimated clay content of 10 to 18 percent.

The A horizon has value of 3 or 4 dry and chroma of 1 or 2 moist or dry. It is silt loam with 10 to 18 percent clay. It is slightly acid to slightly alkaline.

The Bw horizon has value of 4 or 5 dry and chroma of 2 or 3 moist or dry. It is silt loam with 10 to 18 percent clay. It is neutral or slightly alkaline.

The BC horizon, where present, has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam or very fine sandy loam with 10 to 18 percent clay. It is neutral or slightly alkaline.

The C horizon has value of 3 to 6 moist and 5 to 8 dry, and it has chroma of 2 to 4 moist or dry. Below a depth of 40 inches, it is gravelly sandy loam, very gravelly sandy loam, sandy loam, silt loam, gravelly loam, or silty clay loam with 10 to 30 percent clay. It has 0 to 5 percent cobbles and 0 to 50 percent gravel. It is neutral or slightly alkaline.

### ***Lowerbluff Series***

The Lowerbluff series consists of shallow, well drained soils on summits of plateaus and structural benches. These soils formed in mixed volcanic ash, loess, and colluvium derived from basalt. Slopes are 0 to 15 percent. Elevation is 2,800 to 5,700 feet. The mean annual precipitation is 17 to 35 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Lowerbluff silt loam in an area of Syrupcreek-Lowerbluff complex, 2 to 15 percent slopes, in an area of woodland about 15 miles east of Joseph, near Marr Flat; 1,680 feet north and 2,160 feet west of the southeast corner of sec. 11, T. 3 S., R. 47 E.

Oi—1 inch to 0; partially decomposed needles and twigs.

A—0 to 6 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak medium and fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and common fine roots; few fine tubular pores; 3 percent cobbles and 10 percent gravel; moderately acid (pH 6.0); gradual smooth boundary.

Bw—6 to 15 inches; dark yellowish brown (10YR 4/4) gravelly fine sandy loam, yellowish brown (10YR 5/6) dry; weak medium and fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; 10 percent cobbles and 20 percent gravel; moderately acid (pH 6.0); abrupt wavy boundary.

2R—15 inches; basalt.

Depth to bedrock is 10 to 20 inches. The volcanic ash mantle is 10 to 20 inches

thick, and it has 15 to 30 percent volcanic ash. The particle-size control section averages 0 to 30 percent rock fragments and 10 to 18 percent clay. The profile is strongly acid to slightly acid throughout.

The A horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 2 to 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 15 percent total rock fragment content, with 0 to 5 percent cobbles and 0 to 15 percent gravel.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 3 or 4 moist and 4 to 6 dry. It is gravelly fine sandy loam, gravelly silt loam, or silt loam with 10 to 18 percent clay. It has 0 to 30 percent total rock fragment content, with 0 to 10 percent cobbles and 0 to 20 percent gravel.

### ***Mallory Series***

The Mallory series consists of moderately deep, well drained soils in canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 3 to 90 percent. Elevation is 1,400 to 4,100 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Mallory very stony silt loam in an area of Gwinly-Mallory complex, 30 to 70 percent south slopes, in an area of rangeland about 3 miles east of Troy; 1,500 feet north and 400 feet west of the southeast corner of sec. 2, T. 5 N., R. 43 E.

- A1—0 to 3 inches; very dark brown (10YR 2/2) very stony silt loam, brown (10YR 4/3) dry; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine and few coarse irregular pores; 15 percent stones, 15 percent cobbles, and 10 percent gravel; neutral (pH 6.6); clear wavy boundary.
- A2—3 to 8 inches; very dark brown (10YR 2/2) very stony silt loam, brown (10YR 4/3) dry; moderate fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 15 percent stones, 10 percent cobbles, and 20 percent gravel; neutral (pH 6.8); clear wavy boundary.
- AB—8 to 11 inches; dark brown (7.5YR 3/2) very cobbly clay loam, brown (10YR 4/3) dry; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores; 15 percent cobbles and 20 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bt1—11 to 18 inches; dark reddish brown (5YR 2.5/2) extremely cobbly clay, dark reddish brown (5YR 3/3) dry; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and coarse roots; common very fine irregular and tubular pores; common faint clay films on faces of peds; 30 percent cobbles and 40 percent gravel; neutral (pH 6.6); gradual wavy boundary.
- Bt2—18 to 26 inches; dark reddish brown (5YR 2.5/2) extremely cobbly clay, dark reddish brown (5YR 3/3) dry; moderate fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; common very fine irregular and tubular pores; common faint clay films on faces of peds; 40 percent cobbles and 30 percent gravel; neutral (pH 6.6); abrupt wavy boundary.
- 2R—26 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 20 to 35 inches thick,

and it includes all or part of the argillic horizon. Depth to the argillic horizon is 10 to 16 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 or 4 dry, and chroma of 1 or 2 moist and 2 or 3 dry. It has 10 to 30 percent stones, 10 to 20 percent cobbles, and 10 to 20 percent gravel.

The AB horizon, where present, has color similar to that of the A horizon. The AB horizon has 0 to 5 percent stones, 15 to 20 percent cobbles, and 10 to 20 percent gravel.

The Bt horizon has hue of 5YR, 7.5YR, or 10YR, value of 2 to 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist or dry. It is very cobbly, extremely cobbly, or extremely gravelly clay or extremely cobbly silty clay with 40 to 50 percent clay. It has 45 to 75 percent total rock fragment content, with 0 to 5 percent stones, 25 to 40 percent cobbles, and 25 to 40 percent gravel.

### ***Matheny Series***

The Matheny series consists of deep, well drained soils in canyons. These soils formed in colluvium derived from basalt mixed with loess and minor amounts of volcanic ash in the upper part. Slopes are 40 to 90 percent. Elevation is 900 to 3,200 feet. The mean annual precipitation is 14 to 17 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Matheny silt loam in an area of Matheny-Linville silt loams, 30 to 60 percent slopes, about 5 miles northeast of Anatone; taken from a similar matching physiographic area in Asotin County Area, Oregon, adjacent to Wallowa County Area, Oregon, because of the limited acreage in this survey area; 600 feet east and 2,100 feet north of the southwest corner of sec. 34, T. 9 N., R. 46 E.

- A1—0 to 4 inches; black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 5 percent gravel; neutral (pH 6.8); clear wavy boundary.
- A2—4 to 8 inches; black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few medium roots; many very fine irregular pores; 5 percent gravel; neutral (pH 7.0); clear wavy boundary.
- AB—8 to 14 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few medium roots; common very fine irregular pores; 5 percent gravel; neutral (pH 7.2); clear wavy boundary.
- 2Bt—14 to 22 inches; very dark brown (10YR 2/2) very cobbly clay loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine roots; common very fine irregular pores; many faint stress cutans and clay films on faces of peds and clay films lining some pores; 25 percent cobbles and 20 percent gravel; neutral (pH 7.2); clear wavy boundary.
- 2Bk1—22 to 33 inches; dark brown (10YR 3/3) extremely cobbly loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine irregular pores; common coatings of secondary calcium carbonate on underside of basalt fragments and few irregular coarse masses of calcium carbonate; slightly effervescent; 5 percent stones, 30 percent cobbles, and 30 percent gravel; moderately alkaline (pH 8.4); clear wavy boundary.

2Bk2—33 to 44 inches; dark brown (10YR 3/3) extremely cobbly loam, brown (10YR 5/3) dry; massive; hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine irregular pores; many coatings of calcium carbonate on underside of basalt fragments and common irregular coarse masses of calcium carbonate; strongly effervescent; 5 percent stones, 40 percent cobbles, and 30 percent gravel; strongly alkaline (pH 8.6); abrupt irregular boundary.

3R—44 inches; basalt.

Depth to bedrock is 40 to 60 inches. The mollic epipedon is 20 to 35 inches thick, and it includes all or part of the argillic horizon. Depth to secondary calcium carbonate is 20 to 40 inches.

The A1 horizon is silt loam with 18 to 25 percent clay. It has 0 to 5 percent cobbles and 0 to 5 percent gravel.

The A2 horizon has value of 3 or 4 dry and chroma of 1 or 2 moist or dry. It is silt loam, gravelly silt loam, or cobbly silt loam with 18 to 25 percent clay. It has 0 to 20 percent cobbles and 5 to 25 percent gravel.

The AB horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, gravelly silt loam, cobbly silt loam, cobbly loam, or very cobbly loam with 18 to 25 percent clay. It has 0 to 20 percent cobbles and 5 to 25 percent gravel.

The 2Bt horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very gravelly clay loam, very cobbly clay loam, or very cobbly loam with 25 to 35 percent clay.

Some pedons have a Btk horizon. It has 0 to 5 percent stones, 15 to 30 percent cobbles, and 20 to 40 percent gravel. It is neutral or slightly alkaline.

The 2Bk horizon has value of 3 to 5 moist and 5 to 7 dry, and it has chroma of 2 or 3 moist or dry. It is extremely cobbly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, or very cobbly clay loam with 18 to 30 percent clay. It has 0 to 5 percent stones, 25 to 40 percent cobbles, and 20 to 45 percent gravel. It is moderately alkaline or strongly alkaline.

## ***Matterhorn Series***

The Matterhorn series consists of very deep, somewhat excessively drained soils on stream terraces. These soils formed in alluvium and glacial outwash. Slopes are 0 to 3 percent. Elevation is 3,800 to 4,500 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Matterhorn gravelly fine sandy loam, 0 to 3 percent slopes, in a forested area about 1 mile west of Joseph; 1,200 feet north and 500 feet west of the southeast corner of sec. 25, T. 2 S., R. 44 E.

Ak1—0 to 3 inches; very dark gray (10YR 3/1) gravelly fine sandy loam, dark gray (10YR 4/1) dry; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common fine and medium and few coarse roots; many very fine irregular pores; slightly effervescent; 5 percent cobbles and 15 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

Ak2—3 to 10 inches; very dark grayish brown (10YR 3/2) cobbly sandy loam, dark gray (10YR 4/1) dry; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine and medium and few coarse roots; many very fine irregular pores; strongly effervescent; 10 percent cobbles and 10 percent gravel; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bk1—10 to 27 inches; dark grayish brown and grayish brown (10YR 4/2 and 5/2) extremely cobbly loamy sand, grayish brown and light brownish gray (10YR 5/2



and 6/2) dry; single grain; loose, nonsticky and nonplastic; common fine and medium and few coarse roots; many very fine and fine irregular pores; calcium carbonate pendants on underside of rock fragments; strongly effervescent; 40 percent cobbles and 30 percent gravel; moderately alkaline (pH 8.2); gradual wavy boundary.

Bk2—27 to 46 inches; multicolored extremely cobbly sand; single grain; loose, nonsticky and nonplastic; few coarse roots to a depth of about 40 inches; calcium carbonate pendants on underside of rock fragments; strongly effervescent; 10 percent stones, 40 percent cobbles, and 25 percent gravel; moderately alkaline (pH 8.2); gradual wavy boundary.

Bk3—46 to 63 inches; multicolored extremely gravelly sand; single grain; loose, nonsticky and nonplastic; slightly effervescent; 20 percent cobbles and 50 percent gravel; moderately alkaline (pH 8.0).

Depth to bedrock is 60 inches or more. The mollic epipedon is 10 to 15 inches thick, and it may include part of the Bk1 horizon. Depth to the calcic horizon is 10 to 15 inches. The particle-size control section averages less than 5 percent clay and more than 65 percent rock fragments.

The Ak horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. The Ak1 horizon is gravelly fine sandy loam with 5 to 10 percent clay. It has 0 to 5 percent cobbles and 10 to 20 percent gravel. The Ak2 horizon is gravelly or cobbly sandy loam with 5 to 10 percent clay. It has 5 to 15 percent cobbles and 10 to 20 percent gravel. The calcium carbonate equivalent is 5 to 10 percent. The A horizon is slightly alkaline or moderately alkaline.

The Bk1 horizon has value of 3 to 5 moist and 4 to 6 dry, and it has chroma of 2 or 3 moist or dry. The Bk2 and Bk3 horizons are multicolored. The Bk horizon is extremely cobbly loamy sand, extremely cobbly sand, or extremely gravelly sand with 0 to 5 percent clay. It has 0 to 10 percent stones, 20 to 50 percent cobbles, and 15 to 50 percent gravel. The calcium carbonate equivalent is 15 to 20 percent in the Bk1 and Bk2 horizons, and it is 5 to 10 percent in the Bk3 horizon.

## ***Melhorn Series***

The Melhorn series consists of very deep, well drained soils on plateaus. These soils formed in colluvium derived from basalt with a mixture of volcanic ash and loess in the upper part. Slopes are 0 to 15 percent. Elevation is 3,400 to 5,400 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Melhorn silt loam in an area of Larabee-Melhorn complex, 0 to 15 percent slopes, in an area of woodland about 25 miles northeast of Enterprise, near Cayuse Ridge; 1,800 feet east and 700 feet north of the southwest corner of sec. 19, T. 3 N., R. 47 E.

Oi—2 inches to 0; partially decomposed needles, leaves, and moss.

A1—0 to 3 inches; very dark brown (7.5YR 2/2) silt loam, dark brown (7.5YR 3/2) dry; moderate medium platy structure and moderate fine and very fine subangular blocky; hard, friable, slightly sticky and slightly plastic; common medium and many fine and very fine roots; common fine and many very fine irregular pores; slightly acid (pH 6.1); clear smooth boundary.

A2—3 to 14 inches; very dark brown (7.5YR 2/2) silt loam, dark brown (7.5YR 3/3) dry; moderate coarse subangular blocky structure parting to moderate medium and fine subangular blocky; slightly hard, friable, slightly sticky and moderately plastic; few coarse, many medium, and common fine and very fine roots; few medium and fine tubular pores; 5 percent gravel; slightly acid (pH 6.1); clear wavy boundary.

- A3—14 to 20 inches; dark brown (7.5YR 3/2) silt loam, dark brown (7.5YR 3/3) dry; weak coarse subangular blocky structure parting to weak fine and very fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few coarse and common medium and fine roots; few medium and fine and many very fine tubular pores; neutral (pH 7.3); gradual smooth boundary.
- Bt1—20 to 38 inches; brown (7.5YR 4/3) silt loam, brown (7.5YR 4/3) dry; weak medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few coarse and common medium and fine roots; few medium and fine and common very fine tubular pores; 5 percent gravel; neutral (pH 7.3); gradual smooth boundary.
- Bt2—38 to 48 inches; brown (7.5YR 4/3) silt loam, brown (7.5YR 4/4) dry; moderate medium subangular blocky structure parting to moderate fine and very fine subangular blocky; hard, firm, moderately sticky and moderately plastic; few medium and fine roots; few medium, common fine, and many very fine tubular pores; few faint clay films on faces of peds; 5 percent gravel; neutral (pH 7.3); gradual smooth boundary.
- Bt3—48 to 61 inches; brown (7.5YR 4/4) silt loam, strong brown (7.5YR 4/6) dry; moderate fine and very fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; few medium and fine roots; few medium, common fine, and many very fine tubular pores; many faint clay films on faces of peds; 10 percent gravel; neutral (pH 7.3).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon and volcanic ash influence is 10 to 20 inches. The particle-size control section has 18 to 35 percent clay and 10 to 35 percent rock fragments. The profile is slightly acid or neutral.

The A1 horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 3 or 4 dry, and chroma of 2 or 3 moist or dry. It is silt loam with 10 to 20 percent clay. It has 0 to 15 percent gravel.

The A2 and A3 horizons have hue of 10YR or 7.5YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist and 3 or 4 dry. They are silt loam, gravelly silt loam, or loam with 10 to 20 percent clay. They have 5 to 20 percent gravel.

The Bt1 horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist and 4 or 5 dry. It is silt loam, cobbly silt loam, gravelly loam, cobbly loam, or loam with 18 to 27 percent clay. It has 5 to 30 percent total rock fragment content, with 0 to 15 percent cobbles and 5 to 15 percent gravel.

The Bt2 and Bt3 horizons have hue of 10YR or 7.5YR, value of 4 or 5 moist or dry, and chroma of 4 to 6 moist and 5 or 6 dry. They are silt loam, loam, gravelly loam, gravelly clay loam, gravelly silty clay loam, or cobbly silt loam with 18 to 35 percent clay. They have 10 to 35 percent total rock fragment content, with 0 to 15 percent cobbles and 5 to 25 percent gravel.

## ***Minam Series***

The Minam series consists of very deep, well drained soils on alluvial or pediment fans. These soils formed in mixed alluvium and colluvium with an influence of loess and minor amounts of volcanic ash in the upper part. Slopes are 2 to 15 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Minam loam, 8 to 15 percent slopes, in a cultivated area about 5 miles south of Enterprise; 2,620 feet south and 1,450 feet east of the northwest corner of sec. 22, T. 2 S., R. 44 E.

- Ap—0 to 9 inches; black (10YR 2/1) loam, dark gray (10YR 4/1) dry; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many



fine roots; many very fine tubular pores; slightly effervescent; 10 percent gravel; slightly alkaline (pH 7.6); clear wavy boundary.

A—9 to 19 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; 14 percent gravel; about 25 percent of the volume consists of black krotovinas; neutral (pH 7.2); clear wavy boundary.

Bw1—19 to 25 inches; dark brown (7.5YR 3/3) loam, brown (7.5YR 4/3) dry; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; 14 percent gravel; about 14 percent of the volume consists of black krotovinas; neutral (pH 6.8); clear wavy boundary.

Bw2—25 to 35 inches; dark reddish brown (5YR 3/3) loam, reddish brown (5YR 4/3) dry; weak medium prismatic structure parting to moderate medium subangular blocky; hard, friable, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; 13 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

2C—35 to 60 inches; dark reddish brown (5YR 3/4) extremely gravelly loam, reddish brown (5YR 4/4) dry; massive; hard, firm, moderately sticky and moderately plastic; few fine roots; many very fine tubular pores; 10 percent stones, 20 percent cobbles, and 45 percent gravel; neutral (pH 6.9).

Depth to bedrock is 60 inches or more. The mollic epipedon is 20 to 36 inches thick, and it includes all or part of the Bw horizon. The particle-size control section averages 18 to 30 percent clay and less than 35 percent rock fragments. Depth to the extremely gravelly, very gravelly, or very cobbly substratum is 30 to 40 inches.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is loam, gravelly loam, cobbly loam, or stony loam with 5 to 15 percent clay. It has 0 to 10 percent stones, 0 to 15 percent cobbles, and 0 to 20 percent gravel. It is slightly acid to slightly alkaline.

The Bw horizon has hue of 5YR, 7.5YR, or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is loam or clay loam with 18 to 35 percent clay. It has 0 to 15 percent gravel. It is slightly acid or neutral.

The 2C horizon has color similar to that of the Bw horizon. The 2C horizon is very gravelly, extremely gravelly, or very cobbly loam, very gravelly clay loam, or very cobbly clay loam with 15 to 30 percent clay. It has 0 to 15 percent stones, 0 to 25 percent cobbles, and 25 to 45 percent gravel. It is slightly acid or neutral.

## ***Mippon Series***

The Mippon series consists of very deep, moderately well drained soils on flood plains. These soils formed in mixed alluvium. Slopes are 0 to 3 percent. Elevation is 3,100 to 4,500 feet. The mean annual precipitation is 18 to 40 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Mippon loam, 0 to 3 percent slopes, in a forested area about 4.5 miles south of the town of Wallowa, along Bear Creek; 1,400 feet east and 2,400 feet south of the northwest corner of sec. 3, T. 1 S., R. 42 E.

Oi—2 inches to 0; partially decomposed roots, twigs, and needles.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 5/2) dry; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; few medium and fine and many very fine roots; common fine and many very fine irregular pores; neutral (pH 6.8); clear smooth boundary.

A2—3 to 6 inches; very dark grayish brown (10YR 3/2) very fine sandy loam, brown (10YR 5/3) dry; moderate medium and coarse subangular blocky structure; soft,

very friable, nonsticky and slightly plastic; few medium and fine and common very fine roots; few fine and common very fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.

A3—6 to 10 inches; very dark grayish brown (10YR 3/2) fine sandy loam, brown (10YR 4/3) dry; moderate medium and coarse subangular blocky structure; soft, very friable, nonsticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; neutral (pH 6.8); abrupt wavy boundary.

C1—10 to 21 inches; dark brown (10YR 3/2) extremely gravelly loamy sand, brown (10YR 5/3) dry; single grain; loose, nonsticky and nonplastic; common very fine roots; 15 percent cobbles and 45 percent gravel; neutral (pH 6.8); gradual wavy boundary.

C2—21 to 60 inches; very dark grayish brown (10YR 3/2) extremely cobbly loamy coarse sand, grayish brown (10YR 5/2) dry; single grain; loose, nonsticky and nonplastic; few very fine roots; 30 percent cobbles and 35 percent gravel; neutral (pH 6.9).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 17 inches. Depth to the extremely gravelly substratum is 10 to 20 inches. A high water table is present in winter and spring. Rare flooding occurs in winter and spring. The particle-size control section has 50 to 90 percent gravel, cobbles, and stones. The profile is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist and 2 or 3 dry. It has 0 to 15 percent gravel. The A2 and A3 horizons are fine sandy loam or very fine sandy loam.

The C horizon has chroma of 2 or 3 moist and 3 or 4 dry. It is extremely gravelly or extremely cobbly loamy sand, very gravelly or very cobbly loamy sand, or extremely cobbly loamy coarse sand with 2 to 10 percent clay. It has 0 to 20 percent stones, 10 to 30 percent cobbles, and 25 to 50 percent gravel.

## ***Mountemily Series***

The Mountemily series consists of very deep, well drained soils on footslopes and backslopes. These soils formed in volcanic ash over colluvium derived from basalt. Slopes are 15 to 90 percent. Elevation is 5,400 to 7,000 feet. The mean annual precipitation is 30 to 45 inches, and the mean annual air temperature is 35 to 41 degrees F.

Typical pedon of Mountemily silt loam in an area of Mountemily-Troutmeadows complex, 15 to 30 percent north slopes, in an area of woodland about 13 miles southeast of the town of Joseph, near Echo Canyon; 200 feet east and 1,200 feet south of the northwest corner of sec. 13, T. 4 S., R. 46 E.

Oi—1 inch to 0; slightly decomposed moss and twigs.

A—0 to 4 inches; dark yellowish brown (10YR 3/4) silt loam, light yellowish brown (10YR 6/4) dry; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine irregular pores; 10 percent cobbles; moderately acid (pH 5.9); gradual smooth boundary.

Bw—4 to 14 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and very fine tubular pores; moderately acid (pH 6.0); abrupt wavy boundary.

2Ab—14 to 29 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and very fine tubular

pores; 30 percent cobbles and 25 percent gravel; moderately acid (pH 6.0); abrupt wavy boundary.

2Bwb—29 to 60 inches; dark brown (7.5YR 3/4) very gravelly loam, brown (7.5YR 5/4) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 10 percent cobbles and 25 percent gravel; slightly acid (pH 6.1).

Depth to bedrock is 60 inches or more. Thickness of the volcanic ash mantle is 14 to 22 inches. The upper part of the particle-size control section has 5 to 15 percent clay and 0 to 20 percent rock fragments, and the lower part has 20 to 30 percent clay and 35 to 75 percent rock fragments.

The A horizon has value of 5 or 6 dry and chroma of 2 to 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent cobbles and 0 to 5 percent gravel.

The Bw horizon has value of 3 to 5 moist and 5 to 8 dry, and it has chroma of 2 to 4 moist and 4 to 6 dry. It is silt loam, gravelly silty loam, or cobbly silt loam with 5 to 15 percent clay. It has 0 to 20 percent total rock fragment content, with 0 to 15 percent stones, 0 to 15 percent cobbles, and 0 to 20 percent gravel. It is moderately acid or slightly acid.

The 2Ab horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 to 6 dry, and chroma of 2 to 4 moist or dry. It is very gravelly loam, very cobbly loam, extremely cobbly silt loam, or very cobbly silt loam with 20 to 25 percent clay. It has 40 to 70 percent total rock fragment content, with 0 to 5 percent stones, 0 to 30 percent cobbles, and 15 to 40 percent gravel. It is moderately acid or slightly acid.

The 2Bwb horizon has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 to 7 dry, and chroma of 2 to 4 moist or dry. It is very gravelly loam, extremely cobbly silt loam, or very gravelly silty clay loam with 20 to 30 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 5 percent stones, 10 to 40 percent cobbles, and 15 to 40 percent gravel. It is moderately acid or slightly acid.

## ***Needhill Series***

The Needhill series consists of deep, well drained soils on structural benches and plateaus. These soils formed in mixed volcanic ash and loess over colluvium and residuum derived from basalt. Slopes are 0 to 30 percent. Elevation is 4,000 to 5,800 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Needhill silt loam in an area of Needhill-Parsnip-Bocker complex, 15 to 30 percent slopes, in an area of rangeland; about 16 miles east of Enterprise, near Clear Lake Ridge; 1,680 feet north and 1,920 feet east of the southwest corner of sec. 34, T. 1 S., R. 47 E.

A1—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores and few fine tubular pores; 10 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

A2—9 to 20 inches; dark brown (10YR 3/3) gravelly silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; 15 percent gravel; slightly acid (pH 6.5); gradual smooth boundary.

AB—20 to 35 inches; dark brown (10YR 3/3) gravelly silt loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; 5 percent cobbles and 20 percent gravel; slightly acid (pH 6.5); clear smooth boundary.

2Bt—35 to 53 inches; dark yellowish brown (10YR 4/4) very cobbly loam, yellowish

brown (10YR 5/4) dry; weak fine and medium subangular blocky structure; hard, friable, moderately sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; common faint clay films on faces of peds; 5 percent stones, 15 percent cobbles, and 20 percent gravel; neutral (pH 7.0); abrupt irregular boundary.

2R—53 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 20 to 35 inches. The volcanic ash influence is 30 to 60 percent glass and 7 to 14 inches thick. The particle-size control section averages 35 to 60 percent rock fragments and 18 to 30 percent clay.

The A1 horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is silt loam with 10 to 18 percent clay. It has 0 to 10 percent gravel. It is moderately acid or slightly acid.

The A2 horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is silt loam, gravelly silt loam, gravelly loam, or gravelly fine sandy loam with 10 to 18 percent clay and 5 to 15 percent gravel. It is moderately acid or slightly acid.

The AB horizon may be absent in some pedons. It has hue of 10YR or 7.5YR, value of 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is silt loam, gravelly silt loam, gravelly loam, or gravelly fine sandy loam with 10 to 18 percent clay. It has 5 to 25 percent total rock fragment content, with 0 to 5 percent cobbles and 5 to 20 percent gravel. It is moderately acid or slightly acid.

The 2Bt horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is very cobbly loam, very gravelly clay loam, very gravelly silt loam, or very gravelly silty clay loam with 18 to 30 percent clay. It has 30 to 60 percent total rock fragment content, with 0 to 10 percent stones, 5 to 15 percent cobbles, and 20 to 55 percent gravel. It is moderately acid to neutral.

## ***Olot Series***

The Olot series consists of moderately deep, well drained soils in canyons and on mountains, plateaus, and structural benches. These soils formed in volcanic ash over colluvium and residuum derived from basalt. Slopes are 2 to 60 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Olot silt loam, 2 to 15 percent slopes, in an area of woodland about 10 miles north of the town of Wallowa, 800 feet south and 1,500 feet east of the northwest corner of sec. 17, T. 3 N., R. 42 E.

Oi—1 inch to 0; mostly undecomposed pine needles and twigs.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine irregular pores; slightly acid (pH 6.4); clear smooth boundary.

A2—2 to 6 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; neutral (pH 6.8); gradual smooth boundary.

Bw—6 to 19 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine tubular pores; neutral (pH 6.6); abrupt wavy boundary.

2Bwb1—19 to 22 inches; dark brown (10YR 3/3) very cobbly silt loam, brown (10YR

5/3) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and medium roots; many very fine tubular pores; 15 percent cobbles and 25 percent gravel; neutral (pH 6.6); clear wavy boundary.

2Bwb2—22 to 36 inches; dark brown (10YR 3/3) extremely cobbly silty clay loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and medium roots; many very fine tubular pores; 25 percent cobbles and 35 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

3R—36 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the volcanic ash mantle is 14 to 20 inches. The profile is slightly acid or neutral.

The A horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 to 6 dry, and chroma of 2 or 3 moist or dry. It is silt loam with 5 to 15 percent clay and 0 to 2 percent cobbles.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay and 0 to 5 percent cobbles.

The 2Bwb horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 to 6 dry and chroma of 3 or 4 moist or dry. It is very cobbly silt loam or extremely cobbly silty clay loam with 25 to 35 percent clay. It has 35 to 80 percent total rock fragment content, with 0 to 5 percent stones, 15 to 50 percent cobbles, and 10 to 35 percent gravel.

### ***Parsnip Series***

The Parsnip series consists of shallow, well drained soils on broad plateaus and structural benches. These soils formed in mixed volcanic ash and loess over basalt. Slopes are 0 to 30 percent. Elevation is 3,400 to 5,800 feet. The mean annual precipitation is 13 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Parsnip silt loam, 2 to 8 percent slopes, in an area of rangeland 7 miles northeast of Joseph; 1,320 feet west and 1,760 feet north of the southeast corner of sec. 31, T. 1 S., R. 46 E.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine roots; common very fine irregular pores; slightly acid (pH 6.2); abrupt wavy boundary.

BA—6 to 9 inches; dark brown (7.5YR 3/3) silt loam, brown (10YR 5/3) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; neutral (pH 6.8); clear wavy boundary.

Bt—9 to 13 inches; dark brown (7.5YR 3/4) silty clay loam, brown (7.5YR 5/4) dry; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; common faint clay films on faces of peds; 5 percent gravel; neutral (pH 7.2); abrupt wavy boundary.

2R—13 inches; basalt.

Depth to bedrock is 10 to 20 inches. Thickness of the mollic epipedon is 7 to 15 inches. The volcanic ash influence is 30 to 60 percent glass and is 7 to 15 inches thick. The particle-size control section has 18 to 35 percent clay and 0 to 15 percent rock fragments. The profile is slightly acid or neutral throughout.



The Ap horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam or gravelly silt loam with 18 to 25 percent clay. It has 0 to 5 percent cobbles and 0 to 30 percent gravel.

The BA horizon, where present, has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 1 to 3 moist or dry. It has 0 to 5 percent gravel.

The Bt horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 to 4 moist or dry. It is silt loam or silty clay loam with 25 to 35 percent clay. The lower part of the Bt horizon has 0 to 5 percent cobbles and 0 to 10 percent gravel.

## ***Phys Series***

The Phys series consists of very deep, well drained soils on alluvial fans and terraces in narrow stream valleys or at the mouth of narrow canyons. These soils formed in mixed alluvium. Slopes are 2 to 30 percent. Elevation is 1,700 to 3,400 feet. The mean annual precipitation is 14 to 17 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Phys cobbly loam, 2 to 8 percent slopes, in a cultivated area about 4.5 miles southeast of the town of Wallowa; 2,600 feet west and 100 feet north of the southeast corner of sec. 31, T. 1 N., R. 43 E.

- Ap—0 to 6 inches; very dark brown (10YR 2/2) cobbly loam, dark grayish brown (10YR 4/2) dry; strong fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and many very fine roots; common fine and many very fine irregular pores; 10 percent cobbles and 10 percent gravel; neutral (pH 6.8); abrupt smooth boundary.
- A—6 to 10 inches; very dark brown (10YR 2/2) cobbly loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 10 percent cobbles and 10 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bw—10 to 16 inches; very dark grayish brown (10YR 3/2) cobbly loam, brown (10YR 5/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 15 percent cobbles and 10 percent gravel; neutral (pH 6.8); abrupt wavy boundary.
- Bt—16 to 23 inches; dark brown (10YR 3/3) very gravelly clay loam, brown (10YR 4/3) dry; weak very fine and fine subangular blocky structure; hard, friable, moderately sticky and slightly plastic; common very fine roots; common very fine tubular pores; common distinct clay films on faces of peds; 10 percent cobbles and 40 percent gravel; neutral (pH 6.8); gradual wavy boundary.
- C—23 to 60 inches; dark yellowish brown (10YR 3/4) extremely cobbly sandy clay loam, dark yellowish brown (10YR 4/4) dry; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 30 percent cobbles and 30 percent gravel; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 12 to 20 inches.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is gravelly loam, silt loam, or cobbly loam with 18 to 27 percent clay. It has 0 to 5 percent stones, 0 to 10 percent cobbles, and 5 to 25 percent gravel. The horizon is slightly acid or neutral.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is clay loam, cobbly clay loam, cobbly loam, or loam with 20 to 30

percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 3 percent stones, 10 to 15 percent cobbles, and 10 to 20 percent gravel.

The Bt horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 to 4 moist or dry. It is very gravelly or very cobbly clay loam with 27 to 35 percent clay. It has 35 to 60 percent total rock fragment content, with 0 to 10 percent stones, 20 to 35 percent cobbles, and 10 to 40 percent gravel.

The C horizon has color similar to that of the Bt horizon. The C horizon is very cobbly loam or extremely cobbly sandy clay loam with 15 to 25 percent clay. It has 50 to 80 percent total rock fragment content, with 0 to 20 percent stones, 20 to 50 percent cobbles, and 10 to 30 percent gravel. The horizon is neutral or slightly alkaline.

### ***Powwatka Series***

The Powwatka series consists of moderately deep, well drained soils on rolling hills. These soils formed in loess over basalt with an influence of volcanic ash in the upper part. Slopes are 2 to 30 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Powwatka silt loam, 2 to 8 percent slopes, in a cultivated area about 2 miles northeast of Lostine, on School Flat; 1,650 feet north and 400 feet east of the southwest corner of sec. 1, T. 1 S., R. 43 E.

- Ap—0 to 8 inches; very dark brown (10YR 2/2) silt loam, dark gray (10YR 4/1) dry; weak very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common irregular pores; slightly acid (pH 6.4); abrupt smooth boundary.
- A—8 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many very fine roots; many very fine tubular pores; neutral (pH 6.6); clear wavy boundary.
- Bt1—14 to 18 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; weak fine prismatic structure parting to moderate fine and very fine subangular blocky; slightly hard, friable, slightly sticky and moderately plastic; many fine roots; many very fine tubular pores; few faint clay films on faces of peds; few krotovinas 2 to 4 inches in diameter; neutral (pH 6.8); gradual wavy boundary.
- Bt2—18 to 24 inches; dark brown (7.5YR 4/4) silty clay loam, brown (7.5YR 5/4) dry; weak fine prismatic structure parting to moderate fine and very fine subangular blocky; hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; few faint clay films on faces of peds; few krotovinas 2 to 4 inches in diameter; neutral (pH 6.8); abrupt wavy boundary.
- 2R—24 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 12 to 20 inches thick, and it may include the upper part of the Bt horizon. The upper 8 to 22 inches is influenced by volcanic ash.

The Ap and A horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 1 or 2 moist or dry. They are silt loam with 18 to 25 percent clay. The horizons are slightly acid or neutral.

The Bt horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is silty clay loam with 27 to 35 percent clay. It has 0 to 10 percent gravel in the lower part. The upper part of the horizon is slightly acid or neutral, and the lower part is neutral or slightly alkaline.



### ***Puzzlecreek Series***

The Puzzlecreek series consists of moderately deep, well drained soils on mountains. These soils formed in colluvium derived from basalt mixed with loess and volcanic ash in the upper part. Slopes are 15 to 60 percent. Elevation is 6,500 to 7,000 feet. The mean annual precipitation is 30 to 45 inches, and the mean annual air temperature is 35 to 41 degrees F.

Typical pedon of Puzzlecreek very stony very fine sandy loam, 20 to 60 percent north slopes, in an area of rangeland about 6 miles west of Enterprise; 1,320 feet west and 600 feet south of the northeast corner of sec. 11, T. 2 S., R. 43 E.

- A—0 to 9 inches; very dark grayish brown (10YR 3/2) very stony very fine sandy loam, brown (10YR 4/3) dry; weak very fine and fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; few fine and many very fine irregular pores; 20 percent stones, 10 percent cobbles, and 15 percent gravel; moderately acid (pH 6.0); abrupt smooth boundary.
- Bw1—9 to 13 inches; dark brown (10YR 3/3) very stony loam, dark yellowish brown (10YR 4/4) dry; moderate very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 10 percent stones, 20 percent cobbles, and 15 percent gravel; slightly acid (pH 6.1); clear wavy boundary.
- Bw2—13 to 39 inches; brown (10YR 4/3) extremely cobbly loam, yellowish brown (10YR 5/4) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 10 percent stones, 25 percent cobbles, and 25 percent gravel; slightly acid (pH 6.3); abrupt wavy boundary.
- R—39 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the umbric epipedon is 7 to 12 inches. Thickness of the volcanic ash mantle is 7 to 12 inches. The particle-size control section has 5 to 15 percent clay and 35 to 65 percent rock fragments. The profile is moderately acid or slightly acid throughout.

The A horizon has hue of 7.5YR or 10YR, value of 3 to 5 dry, and chroma of 2 or 3 moist and 3 to 5 dry. It is very stony very fine sandy loam with 5 to 15 percent clay. It has 35 to 45 percent total rock fragment content, with 10 to 20 percent stones, 10 to 15 percent cobbles, and 15 to 25 percent gravel.

The Bw1 horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 3 to 5 dry, and chroma of 3 or 4 moist and 4 to 6 dry. It is very stony very fine sandy loam, very stony silt loam, very cobbly loam, or very stony loam with 5 to 15 percent clay. It has 35 to 55 percent total rock fragment content, with 10 to 20 percent stones, 10 to 20 percent cobbles, and 15 to 25 percent gravel.

The Bw2 horizon has color similar to that of the Bw1 horizon. The Bw2 horizon is very stony or extremely stony very fine sandy loam, extremely cobbly silt loam, or extremely cobbly loam with 10 to 15 percent clay. It has 40 to 75 percent total rock fragment content, with 10 to 25 percent stones, 15 to 25 percent cobbles, and 15 to 25 percent gravel.

### ***Quirk Series***

The Quirk series consists of moderately deep, well drained soils on structural benches and dissected plateaus. These soils formed in mixed loess and residuum derived from basalt. Slopes are 0 to 30 percent. Elevation is 3,600 to 4,600 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Quirk silt loam in an area of Volstead-Quirk-Bocker complex, 0 to 15 percent slopes, in an area of woodland about 18 miles north of Enterprise; 2,375 feet west and 1,320 feet north of the southeast corner of sec. 3, T. 2 N., R. 45 E.

Oi—1 to 0.5 inch; dead, slightly decomposed grass, moss, pine needles, and twigs.

Oe—0.5 inch to 0; decomposing organic matter.

A—0 to 12 inches; dark brown (7.5YR 3/2) silt loam, brown (7.5YR 5/3) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine irregular pores; 3 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

2Eb—12 to 21 inches; brown (7.5YR 4/3) loam, light brown (7.5YR 6/4) dry; weak fine subangular blocky structure parting to weak very fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine irregular pores and common very fine and few fine and medium tubular pores; 2 percent cobbles and 4 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

2Btb1—21 to 33 inches; reddish brown (5YR 4/4) clay, brown (7.5YR 5/4) dry; strong fine subangular blocky structure parting to strong very fine subangular blocky; very hard, firm, very sticky and very plastic; common very fine and few fine roots; few very fine irregular pores and few fine and very fine tubular pores; common distinct clay films on faces of peds and lining pores; 5 percent gravel; neutral (pH 6.7); clear smooth boundary.

2Btb2—33 to 37 inches; reddish brown (5YR 4/4) very cobbly clay, strong brown (7.5YR 5/6) dry; strong medium subangular blocky structure parting to strong fine subangular blocky; extremely hard, firm, very sticky and very plastic; few very fine roots; few very fine irregular and tubular pores; common distinct clay films on faces of peds and lining pores; 30 percent cobbles and 20 percent gravel; neutral (pH 7.0); abrupt smooth boundary.

3R—37 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon and the volcanic ash influence is 10 to 20 inches. Depth to the clayey argillic horizon is 20 to 30 inches. The particle-size control section has 40 to 50 percent clay and 5 to 25 percent rock fragments. The profile has hue of 7.5YR or 5YR throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 10 to 15 percent clay. It has 0 to 10 percent gravel. It is slightly acid or neutral.

The 2Eb horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist and 3 or 4 dry. It is gravelly silt loam, silt loam, loam, or clay loam with 18 to 30 percent clay. It has 0 to 5 percent cobbles and 0 to 20 percent gravel.

The 2Btb1 horizon has value of 4 or 5 dry and chroma of 3 or 4 moist and 3 to 6 dry. It is clay or gravelly clay with 40 to 50 percent clay. It has 0 to 5 percent cobbles and 0 to 20 percent gravel. It is neutral or slightly alkaline.

The 2Btb2 horizon has value of 4 or 5 dry and chroma of 3 to 6 dry. It is very cobbly, cobbly, or gravelly clay with 40 to 50 percent clay. It has 0 to 30 percent cobbles and 0 to 20 percent gravel. It is neutral or slightly alkaline.

## ***Ramo Series***

The Ramo series consists of very deep, well drained soils on toeslopes and footslopes of hills. These soils formed in mixed loess and slope alluvium over fine textured residuum and colluvium derived from basalt. Slopes are 2 to 30 percent. Elevation is 2,800 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Ramo silty clay loam, 8 to 15 percent slopes, in an area of pasture about 3 miles south of the town of Wallowa; 1,700 feet west and 1,700 feet south of the northeast corner of sec. 36, T. 1 N., R. 42 E.

- Ap1—0 to 2 inches; black (10YR 2/1) silty clay loam, very dark grayish brown (10YR 3/2) dry; strong medium platy structure parting to strong fine and medium granular; slightly hard, firm, slightly sticky and slightly plastic; common medium and fine and many very fine roots; common fine and many very fine irregular pores; 5 percent gravel; slightly acid (pH 6.2); clear smooth boundary.
- Ap2—2 to 8 inches; black (10YR 2/1) silty clay loam, very dark grayish brown (10YR 3/2) dry; moderate fine and medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few fine and common very fine roots; few fine and many very fine tubular pores; 5 percent gravel; slightly acid (pH 6.2); gradual wavy boundary.
- BA—8 to 18 inches; very dark brown (10YR 2/2) silty clay loam, dark brown (10YR 3/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 10 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.
- 2Btb1—18 to 29 inches; dark yellowish brown (10YR 3/4) cobbly clay, dark yellowish brown (10YR 4/4) dry; moderate fine and medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores; continuous distinct clay films on faces of peds; 15 percent cobbles and 15 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.
- 2Btb2—29 to 41 inches; dark yellowish brown (10YR 4/4) cobbly clay, yellowish brown (10YR 5/4) dry; moderate medium and coarse subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; many distinct clay films on faces of peds; 15 percent cobbles and 10 percent gravel; neutral (pH 6.8); gradual wavy boundary.
- 2C—41 to 65 inches; dark yellowish brown (10YR 4/4) very cobbly clay loam, yellowish brown (10YR 5/4) dry; massive; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; 5 percent stones, 20 percent cobbles, and 15 percent gravel; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. Depth to the buried clayey layer is 10 to 20 inches. The particle-size control section averages 15 to 35 percent rock fragments. In some pedons a stone line is between the upper layers and the buried subsoil. The profile is slightly acid or neutral throughout.

The Ap horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is silty clay loam with 27 to 35 percent clay. It has 0 to 10 percent cobbles and 0 to 10 percent gravel.

The BA horizon, where present, has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 2 or 3 moist or dry. It is silty clay loam with 27 to 35 percent clay. It has 0 to 5 percent cobbles and 0 to 10 percent gravel.

The 2Btb horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is gravelly silty clay loam, gravelly clay, or cobbly clay with 35 to 45 percent clay. It has 0 to 5 percent stones, 5 to 20 percent cobbles, and 10 to 25 percent gravel.

The 2C horizon, where present, has hue of 10YR or 7.5YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 3 to 5 moist or dry. It is gravelly silty clay loam or very cobbly clay loam with 30 to 40 percent clay. It has 0 to 10 percent stones, 5 to 20 percent cobbles, and 10 to 20 percent gravel.

## ***Reavis Series***

The Reavis series consists of very deep, well drained soils on outwash plains. These soils formed in glaciofluvial outwash with an influence of loess and minor amounts of volcanic ash in the upper part. Slopes are 0 to 3 percent. Elevation is 3,600 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Reavis silt loam, 0 to 3 percent slopes, in a cultivated area about 3 miles east of Joseph; 1,000 feet east and 1,400 feet north of the southwest corner of sec. 35, T. 2 S., R. 45 E.

Ap—0 to 6 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; weak medium granular structure; hard, friable, slightly sticky and slightly plastic; few medium and many fine and very fine roots; many very fine tubular pores; slightly acid (pH 6.2); clear smooth boundary.

A—6 to 15 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine tubular pores; slightly acid (pH 6.2); abrupt irregular boundary.

Bw1—15 to 24 inches; dark yellowish brown (10YR 3/4) silt loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; slightly acid (pH 6.4); abrupt wavy boundary.

Bw2—24 to 34 inches; dark yellowish brown (10YR 3/4) silt loam, brown (10YR 5/3) dry; weak coarse prismatic structure parting to weak medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; slightly acid (pH 6.4); clear smooth boundary.

2Bw3—34 to 41 inches; dark brown (7.5YR 3/4) loam, brown (7.5YR 5/3) dry; weak medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; few very fine roots; many very fine tubular pores; 5 percent gravel; neutral (pH 6.6); clear smooth boundary.

2Bk1—41 to 54 inches; pale brown (10YR 6/3) very gravelly loam, very pale brown (10YR 7/3) dry; massive; soft, friable, slightly sticky and slightly plastic; few very fine roots; few very fine pores; common fine and medium calcium carbonate threads throughout and coatings of calcium carbonate on underside of gravel; strongly effervescent; 40 percent gravel; moderately alkaline (pH 8.0); clear smooth boundary.

2Bk2—54 to 60 inches; pale brown (10YR 6/3) very gravelly loam, very pale brown (10YR 7/3) dry; massive; soft, friable, slightly sticky and slightly plastic; few roots; few very fine pores; few fine and medium calcium carbonate threads throughout and coatings of calcium carbonate on the underside of gravel; strongly effervescent; 55 percent gravel; moderately alkaline (pH 8.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. Depth to the very gravelly layer and the calcic horizon is 30 to 44 inches. The particle-size control section averages 18 to 27 percent clay.

The Ap and A horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 1 or 2 moist or dry. They are silt loam with 18 to 27 percent clay and 0 to 10 percent gravel. The horizons are slightly acid or neutral.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is silt loam or loam with 18 to 27 percent clay. It has 0 to 10 percent gravel. The horizon is slightly acid or neutral.

The 2Bw horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 or 5 dry,

and chroma of 3 or 4 moist or dry. It is gravelly silt loam, silt loam, or loam with 18 to 27 percent clay. It has 5 to 25 percent gravel. The horizon is slightly acid or neutral.

The 2Bk horizon has hue of 7.5YR or 10YR, value of 4 to 6 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is very gravelly loam or very gravelly silt loam with 15 to 25 percent clay. It has 0 to 5 percent stones and 35 to 55 percent gravel. It has 20 to 30 percent calcium carbonate equivalent. The horizon is slightly alkaline or moderately alkaline.

### ***Redmount Series***

The Redmount series consists of very deep, well drained soils on broad outwash plains. These soils formed in glaciofluvial outwash with an influence of loess and minor amounts of volcanic ash in the upper part. Slopes are 0 to 8 percent. Elevation is 3,400 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Redmount silt loam, 0 to 3 percent slopes, in a cultivated area 3.5 miles south of Enterprise and 30 feet east of Hurricane Road; 1,500 feet north and 1,000 feet west of the southeast corner of sec. 23, T. 2 S., R. 44 E.

- Ap—0 to 9 inches; black (10YR 2/1) silt loam, very dark gray (10YR 3/1) dry; moderate fine and medium granular structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine irregular pores; 10 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.
- A—9 to 12 inches; black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine and medium granular structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular and irregular pores; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.
- Bw1—12 to 20 inches; very dark brown (10YR 2/2) loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.8); gradual smooth boundary.
- Bw2—20 to 32 inches; very dark brown (10YR 2/2) sandy loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure, soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.
- 2C1—32 to 42 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam, brown (10YR 4/3) dry; single grain; loose, nonsticky and nonplastic; few very fine roots; many very fine irregular pores; 40 percent gravel; slightly alkaline (pH 7.6); gradual smooth boundary.
- 2C2—42 to 60 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam, brown (10YR 4/3) dry; single grain; loose, nonsticky and nonplastic; many very fine and fine irregular pores; 55 percent gravel; slightly alkaline (pH 7.6).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 36 inches. Depth to the very gravelly or extremely gravelly substratum is 26 to 40 inches. The particle-size control section has 10 to 18 percent clay and averages less than 35 percent rock fragments. The profile is neutral or slightly alkaline throughout.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam or gravelly silt loam with 10 to 18 percent clay. It has 0 to 25 percent gravel. It has 3 to 5 percent organic matter.

The Bw horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam, loam, or sandy loam with 10 to 18 percent clay. It has 0 to 10 percent gravel. It has 1 to 3 percent organic matter.

The 2C horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 to 4 moist or dry. It is very gravelly or extremely gravelly sandy loam or very gravelly



loamy sand with 5 to 10 percent clay. It has 0 to 5 percent stones, 0 to 15 percent cobbles, and 35 to 70 percent gravel. In some pedons coatings of calcium carbonate are on the underside of rock fragments.

### ***Rockly Series***

The Rockly series consists of very shallow, well drained soils on structural benches, plateaus, and canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 2 to 90 percent. Elevation is 800 to 4,100 feet. The mean annual precipitation is 12 to 24 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Rockly very cobbly loam in an area of Gwinly-Rockly complex, 2 to 15 percent slopes, in an area of rangeland about 3 miles east of Troy; 1,900 feet north and 1,000 feet west of the southeast corner of sec. 2, T. 5 N., R. 43 E.

A—0 to 3 inches; very dark brown (10YR 2/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium granular structure and weak thin platy; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine and few medium irregular pores; 25 percent cobbles and 15 percent gravel; neutral (pH 7.2); clear wavy boundary.

Bw—3 to 7 inches; dark brown (10YR 3/3) extremely cobbly loam, brown (10YR 4/3) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 25 percent cobbles and 40 percent gravel; neutral (pH 7.2); abrupt wavy boundary.

2R—7 inches; basalt.

Depth to bedrock is 4 to 10 inches. Thickness of the mollic epipedon is 4 to 10 inches. The particle-size control section averages 20 to 30 percent clay and has 35 to 75 percent total rock fragment content. The profile is slightly acid or neutral.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 or 3 moist or dry. It is very cobbly loam with 20 to 27 percent clay. It has 0 to 10 percent stones, 20 to 30 percent cobbles, and 10 to 20 percent gravel.

The Bw horizon has hue of 5YR, 7.5YR, or 10YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 or 4 moist or dry. It is extremely cobbly loam or very cobbly clay loam with 20 to 30 percent clay. It has 0 to 5 percent stones, 20 to 35 percent cobbles, and 20 to 40 percent gravel.

### ***Rondowa Series***

The Rondowa series consists of very deep, well drained soils on moraines and outwash fans. These soils formed in mixed glacial till with an influence of loess and volcanic ash in the upper part. Slopes are 2 to 60 percent. Elevation is 3,500 to 5,000 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Rondowa stony loam, 2 to 15 percent slopes, in an area of rangeland about 1 mile south of Joseph; 450 feet south and 1,100 feet west of the northeast corner of sec. 6, T. 3 S., R. 45 E.

A1—0 to 10 inches; black (10YR 2/1) stony loam, very dark gray (10YR 3/1) dry; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; many fine and very fine tubular pores; 10 percent stones, 10 percent cobbles, and 5 percent gravel; neutral (pH 6.6); gradual smooth boundary.

A2—10 to 17 inches; very dark brown (10YR 2/2) gravelly loam, very dark grayish brown (10YR 3/2) dry; weak fine granular structure; soft, friable, slightly sticky

and slightly plastic; many fine and very fine roots; few fine pores; 20 percent gravel; neutral (pH 6.7); gradual smooth boundary.

A3—17 to 26 inches; very dark grayish brown (10YR 3/2) gravelly loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine and fine pores; 10 percent cobbles and 20 percent gravel; neutral (pH 7.0); gradual irregular boundary.

AC—26 to 36 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 4/3) dry; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine roots; many fine and very fine pores; 5 percent stones, 30 percent cobbles, and 20 percent gravel; neutral (pH 7.2); gradual irregular boundary.

C—36 to 60 inches; dark grayish brown (10YR 4/2) very cobbly loam, gray (10YR 5/1) dry; massive; soft, friable, nonsticky and nonplastic; few fine roots; many fine and very fine pores; 10 percent stones, 25 percent cobbles, and 15 percent gravel; neutral (pH 7.3).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. The particle-size control section is 10 to 18 percent clay and has 35 to 60 percent rock fragments. The profile is slightly acid or neutral throughout.

The A1 horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam, stony loam, or bouldery loam with 10 to 18 percent clay. It has 0 to 15 percent boulders, 0 to 15 percent stones, 0 to 10 percent cobbles, and 0 to 15 percent gravel. It has 3 to 4 percent organic matter content.

The A2 and A3 horizons have color similar to that of the A1 horizon. The A2 and A3 horizons are gravelly loam or cobbly loam with 10 to 18 percent clay. They have 0 to 5 percent stones, 0 to 15 percent cobbles, and 15 to 25 percent gravel. They have 1 to 3 percent organic matter content.

The AC horizon, where present, has color and texture similar to those of the C horizon.

The C horizon has value of 3 or 4 moist and 4 to 6 dry, and it has chroma of 1 to 3 moist or dry. It is very cobbly or very stony sandy loam or very cobbly loam with 5 to 15 percent clay. It has 5 to 15 percent stones, 15 to 30 percent cobbles, and 15 to 25 percent gravel.

## ***Sag Series***

The Sag series consists of very deep, well drained soils on plateaus. These soils formed in loess with minor amounts of volcanic ash over colluvium derived from basalt. Slopes are 15 to 75 percent. Elevation is 2,800 to 3,800 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Sag silt loam, 30 to 60 percent north slopes, in an area of rangeland about 23 miles east of Enterprise, along the Imnaha River; 1,920 feet south and 240 feet west of the northeast corner of sec. 35, T. 1 S., R. 48 E.

Oi—1 inch to 0; slightly decomposed leaves.

A1—0 to 4 inches; black (10YR 2/1) silt loam, very dark grayish brown (10YR 3/2) dry; weak fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine irregular pores; neutral (pH 7.0); clear wavy boundary.

A2—4 to 30 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and many fine roots; few fine and medium tubular pores; neutral (pH 7.0); clear wavy boundary.



- Bt1—30 to 37 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; weak fine and medium angular blocky structure; hard, friable, moderately sticky and slightly plastic; common fine roots; few fine and medium tubular pores and common fine irregular pores; common faint clay films on faces of peds; slightly acid (pH 6.5); clear wavy boundary.
- 2Bt2—37 to 47 inches; dark brown (7.5YR 3/4) silty clay loam, brown (7.5YR 5/4) dry; moderate fine angular blocky structure and weak fine subangular blocky; hard, firm, moderately sticky and moderately plastic; few fine roots; common fine irregular pores; common distinct clay films on faces of peds; neutral (pH 7.0); gradual smooth boundary.
- 2Bt3—47 to 61 inches; brown (7.5YR 4/4) silty clay loam, strong brown (7.5YR 5/6) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and slightly plastic; few fine roots; common fine irregular pores; many distinct clay films on faces of peds; slightly alkaline (pH 7.5).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 30 to 40 inches.

The A horizon has value of 2 or 3 moist and 3 or 4 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 18 to 25 percent clay. It has 0 to 5 percent gravel. It is slightly acid or neutral.

The Bt horizon has chroma of 2 or 3 moist and 3 to 5 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam, silty clay loam, or clay loam with 20 to 35 percent clay. It has 0 to 5 percent gravel. It is slightly acid or neutral.

The 2Bt horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 3 or 4 moist and 4 to 6 dry. It is silty clay loam or clay loam with 30 to 40 percent clay. It has 0 to 5 percent cobbles and 0 to 5 percent gravel. It is neutral or slightly alkaline.

The typical pedon for this survey area is outside the range for the Sag series. The 2Bt horizon below a depth of 40 inches has slightly less clay and does not have cobbles or gravel. There are minimal acres of Sag soils in the survey area.

## ***Schrier Series***

The Schrier series consists of very deep, well drained soils on structural benches, in canyons, and on hills. These soils formed in loess and colluvium derived from basalt. Slopes are 2 to 90 percent. Elevation is 1,500 to 3,400 feet. The mean annual precipitation is 12 to 17 inches, and the mean annual air temperature is 45 to 51 degrees F.

Typical pedon of Schrier silt loam, 2 to 8 percent slopes, in a cultivated area about 2 miles north of the town of Wallowa; 2,500 feet south and 1,320 feet west of the northeast corner of sec. 34, T. 2 N., R. 42 E.

- Ap1—0 to 9 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and many very fine roots; few very fine irregular pores; neutral (pH 6.8); gradual smooth boundary.
- Ap2—9 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular pores; neutral (pH 7.0); gradual smooth boundary.
- A—15 to 23 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; neutral (pH 7.0); clear wavy boundary.
- Bw1—23 to 30 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry;

weak medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine tubular pores; neutral (pH 7.1); clear wavy boundary.

Bw2—30 to 34 inches; dark grayish brown (10YR 4/2) silty clay loam, light brownish gray (10YR 6/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; moderately alkaline (pH 8.0); abrupt wavy boundary.

2Bk—34 to 43 inches; grayish brown (10YR 5/2) clay loam, light gray (10YR 7/2) dry; strong coarse subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; common very fine roots; few fine and many very fine tubular pores; filaments of soft powdery calcium carbonate; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

2C—43 to 60 inches; brown (10YR 5/3) clay loam, very pale brown (10YR 7/3) dry; massive; slightly hard, firm, moderately sticky and moderately plastic; few medium, common fine, and many very fine tubular pores; moderately alkaline (pH 8.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 40 inches. The particle-size control section averages 20 to 30 percent clay. Depth to calcium carbonate is 18 to 43 inches.

The Ap and A horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 1 or 2 moist and 1 to 3 dry. They are silt loam with 18 to 25 percent clay and 0 to 5 percent gravel.

The Bw and 2Bk horizons have value of 3 to 5 moist and 4 to 7 dry, and they have chroma of 2 or 3 moist or dry. They are loam, gravelly loam, clay loam, or silty clay loam with 20 to 30 percent clay. They have 0 to 5 percent cobbles and 0 to 15 percent gravel. The horizons are slightly alkaline or moderately alkaline. The 2Bk horizon has 5 to 10 percent calcium carbonate equivalent.

The 2C horizon has value of 4 to 6 moist and 6 or 7 dry, and it has chroma of 2 or 3 moist or dry. It is loam, gravelly loam, or clay loam with 20 to 30 percent clay. It has 0 to 5 percent cobbles and 0 to 30 percent gravel. It is slightly alkaline or moderately alkaline.

## ***Schuelke Series***

The Schuelke series consists of moderately deep, well drained soils on structural benches and in canyons. These soils formed in loess and colluvium derived from basalt. Slopes are 8 to 60 percent. Elevation is 1,700 to 2,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Schuelke silt loam in an area of Schuelke-Schrier-Rockly complex, 8 to 30 percent slopes, in an area of rangeland about 2 miles west of the town of Imnaha, on the south side of Camp Creek; approximately sec. 19, T. 1 N., R. 48 E. (sections not delineated on USGS quadrangle).

A—0 to 5 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine and fine tubular pores; 10 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bt—5 to 12 inches; very dark grayish brown (10YR 3/2) very cobbly silty clay loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; continuous distinct clay

films on faces of peds and in pores; 20 percent cobbles and 15 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

2Btk1—12 to 22 inches; pale brown (10YR 6/3) very cobbly loam, very pale brown (10YR 7/3) dry; moderate coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; common faint clay films on faces of peds; many fine soft masses of calcium carbonate; violently effervescent; 25 percent cobbles and 15 percent gravel; moderately alkaline (pH 8.3); clear wavy boundary.

2Btk2—22 to 33 inches; brown (10YR 5/3) very cobbly loam, pale brown (10YR 6/3) dry; strong coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine tubular pores; many faint clay films on faces of peds; common fine soft masses of calcium carbonate; violently effervescent; 30 percent cobbles and 10 percent gravel; moderately alkaline (pH 8.3); abrupt wavy boundary.

3R—33 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 10 to 17 inches. The particle-size control section averages 25 to 35 percent clay and 35 to 70 percent angular basalt fragments. Depth to the calcic horizon is 12 to 30 inches.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 18 to 27 percent clay and 0 to 10 percent cobbles.

The Bt horizon, where present, has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very cobbly clay loam or very cobbly silty clay loam with 27 to 35 percent clay. It has 20 to 30 percent cobbles and 15 to 25 percent gravel. It is slightly alkaline or moderately alkaline.

The 2Btk horizon has value of 3 to 7 moist and 5 to 8 dry, and it has chroma of 1 to 3 moist or dry. It is very cobbly or extremely cobbly loam or very cobbly clay loam with 25 to 35 percent clay. It has 20 to 45 percent cobbles and 10 to 25 percent gravel. It is moderately alkaline or strongly alkaline. It has 15 to 30 percent calcium carbonate equivalent.

## ***Sherod Series***

The Sherod series consists of shallow, somewhat poorly drained soils in narrow drainageways on plateaus and structural benches. These soils formed in mixed loess and minor amounts of volcanic ash over clayey residuum derived from basalt. Slopes are 0 to 3 percent. Elevation is 3,400 to 4,500 feet. The mean annual precipitation is 17 to 40 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Sherod silt loam in an area of Cowsly-Howmeadows-Sherod complex, 0 to 15 percent slopes, in a meadow in an area of woodland about 6 miles northwest of the town of Wallowa, along Rock Creek; 1,200 feet west and 1,200 feet south of the northeast corner of sec. 17, T. 2 N., R. 42 E.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; common fine distinct yellowish brown (10YR 5/4) redoximorphic concentrations; neutral (pH 6.6); clear smooth boundary

Bw1—5 to 8 inches; dark grayish brown (10YR 4/2) silty clay loam, light brownish gray (10YR 6/2) dry; strong medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and very fine roots; few fine and very fine tubular pores; neutral (pH 6.6); clear smooth boundary.

Bw2—8 to 17 inches; brown (10YR 5/3) very cobbly silty clay loam, pale brown (10YR 6/3) dry; strong medium subangular blocky structure; slightly hard, friable,

moderately sticky and moderately plastic; few very fine roots; few fine and very fine tubular pores; 25 percent cobbles and 25 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

2Bt—17 to 19 inches; brownish yellow (10YR 6/6) very cobbly clay, yellowish brown (10YR 5/4) dry; strong medium angular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; continuous prominent clay films on faces of peds and lining pores; 35 percent cobbles and 15 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

3R—19 inches; basalt.

Depth to bedrock is 10 to 20 inches. Depth to the clayey 2Bt horizon is 10 to 18 inches. The particle-size control section averages less than 35 percent clay and more than 35 percent rock fragments. A high water table is present in spring and early in summer. The profile is slightly acid or neutral throughout.

The A horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 1 to 3 moist or dry. It is silt loam with 20 to 27 percent clay. It has few or common, distinct or prominent redoximorphic concentrations.

The Bw horizon has value of 4 to 6 moist and 6 or 7 dry, and it has chroma of 2 to 4 moist or dry. The upper part of the horizon is silt loam or silty clay loam with 25 to 35 percent clay. It has 0 to 5 percent gravel. The lower part is gravelly silt loam, cobbly silty clay loam, or very cobbly silty clay loam. It has 0 to 25 percent cobbles and 10 to 25 percent gravel.

The 2Bt horizon, where present, has hue of 10YR or 2.5Y, value of 4 to 6 moist or dry, and chroma of 2 to 6 moist and 2 to 4 dry. It is very cobbly or very gravelly clay with 40 to 50 percent clay. It has 15 to 35 percent cobbles and 15 to 30 percent gravel.

## ***Silverlake Series***

The Silverlake series consists of soils that are deep to a strongly cemented duripan and very deep to bedrock and are well drained. They are on outwash terraces. These soils formed in glaciofluvial deposits with an influence of loess in the upper part. Slopes are 0 to 3 percent. Elevation is 3,800 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Silverlake silt loam, 0 to 3 percent slopes, in an area of cropland about 2 miles northeast of Joseph; 1,300 feet east and 30 feet south of the northwest corner of sec. 27, T. 2 S., R. 45 E.

Ap—0 to 8 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; slightly alkaline (pH 7.5); clear smooth boundary.

A—8 to 12 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; moderate coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; slightly alkaline (pH 7.5); abrupt wavy boundary.

2Btk1—12 to 18 inches; dark brown (7.5YR 3/3) silty clay loam, brown (10YR 4/3) dry; moderate medium and coarse subangular blocky structure; very hard, firm, slightly sticky and moderately plastic; few very fine roots; few very fine tubular pores; many distinct clay films; calcium carbonate segregated in common fine and medium soft masses and as coatings on the underside of rock fragments;

strongly effervescent; 10 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.

2Btk2—18 to 24 inches; dark brown (7.5YR 3/4) clay, dark yellowish brown (10YR 4/4) dry; moderate fine and medium prismatic structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; continuous prominent clay films; calcium carbonate segregated in 4- to 8-millimeter-wide seams; strongly effervescent; slightly alkaline (pH 7.8); abrupt wavy boundary.

3Bk1—24 to 31 inches; dark yellowish brown (10YR 4/4) silty clay loam, very pale brown (10YR 7/4) dry; massive; soft, very friable, moderately sticky and slightly plastic; few very fine roots; common very fine tubular pores; violently effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

3Bk2—31 to 42 inches; light yellowish brown (10YR 6/4) very gravelly silt loam, very pale brown (10YR 8/3) dry; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; rock fragments completely coated with calcium carbonate; violently effervescent; 15 percent cobbles and 25 percent gravel; moderately alkaline (pH 7.9); clear wavy boundary.

4Bkqm—42 to 57 inches; strongly cemented duripan; brown (10YR 5/3) very pale brown (10YR 7/3) dry; strongly effervescent; gravel coated with calcium carbonate; moderately alkaline (pH 7.9); abrupt wavy boundary.

4C—57 to 63 inches; dark grayish brown (2.5Y 4/2) very gravelly loamy sand, light brownish gray (2.5Y 6/2) dry; single grain; loose, nonsticky and nonplastic; 50 percent gravel; moderately alkaline (pH 7.9).

Depth to the strongly cemented duripan is 40 to 60 inches. The mollic epipedon is 10 to 20 inches thick, and it may include part of the argillic horizon. Depth to the argillic horizon is 10 to 15 inches. The particle-size control section has 35 to 45 percent clay.

The Ap and A horizons have value of 2 or 3 moist and 3 to 5 dry, and they have chroma of 2 or 3 moist or dry. They are neutral or slightly alkaline.

The 2Btk horizon has hue of 5YR, 7.5YR, or 10YR. The upper part of the horizon has value of 3 or 4 moist and 3 to 5 dry, and it has chroma of 2 or 3 moist and 3 or 4 dry. The lower part has value of 3 or 4 moist and 3 to 6 dry, and it has chroma of 3 or 4 moist or dry. The 2Btk horizon is gravelly clay, clay, or silty clay loam with 35 to 45 percent clay. It has 0 to 15 percent cobbles and 0 to 25 percent gravel. It has filaments or soft masses of secondary calcium carbonate. The horizon is slightly alkaline or moderately alkaline. It has 5 to 10 percent calcium carbonate equivalent.

The 3Bk horizon has hue of 10YR or 7.5YR, value of 4 to 7 moist and 5 to 8 dry, and chroma of 2 to 4 moist or dry. The 3Bk1 horizon is gravelly silt loam, gravelly loam, silty clay loam, or gravelly clay loam with 25 to 35 percent clay. It has 0 to 15 percent cobbles and 0 to 30 percent gravel with less than 35 percent total rock fragment content. The 3Bk2 horizon is very gravelly silt loam, gravelly silt loam, gravelly loam, gravelly clay loam, or silty clay loam. It has 0 to 15 percent cobbles and 0 to 30 percent gravel with less than 40 percent total rock fragment content. The 3Bk horizon is slightly alkaline or moderately alkaline. It has 5 to 10 percent calcium carbonate equivalent.

The 4Bkqm horizon has value of 5 to 7 moist and 7 or 8 dry, and it has chroma of 3 to 6 moist or dry. It is strongly cemented and has 35 to 60 percent gravel. It is slightly alkaline or moderately alkaline.

The 4C horizon does not have calcium carbonate or cementation. It is very gravelly



or extremely gravelly loamy sand. It is slightly alkaline or moderately alkaline. It has 0 to 15 percent cobbles and 30 to 60 percent gravel.

### ***Slicklog Series***

The Slicklog series consists of very deep, well drained soils on toeslopes, footslopes, and backslopes of mountains. These soils formed in volcanic ash and colluvium derived from argillite, shale, and conglomerate. Slopes are 15 to 90 percent. Elevation is 3,800 to 6,200 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Slicklog gravelly loam in an area of Slicklog-Eastpine-Rock outcrop complex, 60 to 90 percent north slopes, in a forested area about 5.5 miles south of the town of Lostine; 700 feet west and 300 feet south of the northeast corner of sec. 10, T. 2 S., R. 43 E.

Oi—1 inch to 0; partially decomposed twigs and needles.

A1—0 to 6 inches; very dark brown (10YR 2/2) gravelly loam, dark grayish brown (10YR 4/2) dry; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; few medium and fine and many very fine roots; few fine and many very fine irregular pores; 10 percent cobbles and 20 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.

A2—6 to 16 inches; very dark brown (10YR 2/2) very gravelly loam, dark grayish brown (10YR 4/2) dry; weak medium granular structure; soft, friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and many very fine irregular pores; 10 percent cobbles and 30 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

Bw1—16 to 22 inches; very dark grayish brown (10YR 3/2) gravelly loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 25 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bw2—22 to 49 inches; very dark grayish brown (10YR 3/2) very gravelly loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine and common very fine roots; common very fine tubular pores; 10 percent cobbles and 35 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bw3—49 to 60 inches; dark grayish brown (10YR 4/2) extremely stony sandy loam, light brownish gray (10YR 6/2) dry; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 40 percent stones, 15 percent cobbles, and 15 percent gravel; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 35 inches. The particle-size control section averages 10 to 18 percent clay and 35 to 60 percent rock fragments. Thickness of the volcanic ash influence is 40 to 60 inches.

The A horizon has value of 2 or 3 moist and 4 or 5 dry. The A1 horizon is loam with 5 to 15 percent clay. It has 0 to 10 percent cobbles and 15 to 25 percent gravel. The A2 horizon is very gravelly loam or very cobbly loam. It has 10 to 20 percent cobbles and 20 to 40 percent gravel. The horizon is slightly acid or moderately acid.

The Bw horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. The upper part of the horizon is gravelly or very gravelly loam or very cobbly sandy loam with 10 to 18 percent clay. It has 0 to 20 percent cobbles and 25 to 40 percent gravel. The lower part is very cobbly or extremely stony sandy loam or very stony loamy sand with 5 to 15 percent clay. It has 0 to 40 percent stones, 10 to 20 percent cobbles, and 15 to 25 percent gravel. It is slightly acid or neutral.

## ***Snell Series***

The Snell series consists of moderately deep, well drained soils on hills and plateaus and in canyons. These soils formed in loess and colluvium derived from basalt (fig. 23). Slopes are 0 to 90 percent. Elevation is 2,800 to 5,000 feet. The mean annual precipitation is 13 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Snell very stony loam in an area of Snell-Imnaha-Rock outcrop complex, moist, 60 to 90 percent north slopes, in an area of rangeland about 6 miles northwest of Wallowa; 2,400 feet north and 1,300 feet west of the southeast corner of sec. 36, T. 2 N., R. 41 E.

A1—0 to 4 inches; black (10YR 2/1) very stony loam, dark gray (10YR 4/1) dry; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine irregular pores; 20 percent stones, 10 percent cobbles, and 5 percent gravel; neutral (pH 7.0); clear wavy boundary.



Figure 23.—Typical pedon of a Snell soil that formed in clayey alluvium and is high in content of angular rock fragments. Snell soils are on hills, plateaus, and canyons.



- A2—4 to 9 inches; very dark brown (10YR 2/2) stony clay loam, very dark grayish brown (10YR 3/2) dry; weak fine granular structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine roots; many fine irregular pores; 15 percent stones, 10 percent cobbles, and 5 percent gravel; neutral (pH 6.8); clear wavy boundary.
- Bt1—9 to 18 inches; dark brown (7.5YR 3/3) very stony clay loam, brown (7.5YR 5/3) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores; continuous faint clay films on faces of peds; 30 percent stones, 15 percent cobbles, and 5 percent gravel; neutral (pH 6.8); clear wavy boundary.
- Bt2—18 to 24 inches; dark brown (7.5YR 3/3) extremely stony clay loam, brown (7.5YR 4/3) dry; strong fine angular blocky structure; very hard, very firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; continuous distinct clay films on faces of peds; 35 percent stones, 25 percent cobbles, and 10 percent gravel; slightly acid (pH 6.5); abrupt wavy boundary.
- 2R—24 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 20 to 36 inches thick, and it includes all or part of the argillic horizon. Layers with 35 to 50 percent clay are at a depth of 10 to 20 inches. The profile is moderately acid to neutral throughout.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 1 or 2 moist and 1 to 3 dry. The A1 horizon is very stony loam, stony loam, very stony clay loam, silt loam, or silty clay loam with 0 to 35 percent stones, 0 to 20 percent cobbles, and 0 to 35 percent gravel.

The Bt horizon has hue of 10YR, 7.5YR, or 5YR, value of 3 or 4 moist and 3 to 5 dry, and chroma of 2 to 4 moist or dry. It is very stony or extremely stony clay loam; cobbly, very gravelly, or extremely stony clay; cobbly or very cobbly silty clay; or extremely stony or very cobbly silty clay loam. It is 35 to 50 percent clay. It has 5 to 40 percent stones, 5 to 25 percent cobbles, and 5 to 45 percent gravel.

## ***Snow Series***

The Snow series consists of very deep, well drained soils on terraces. These soils formed in loess and alluvium. Slopes are 0 to 3 percent. Elevation is 2,700 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Snow silt loam, 0 to 3 percent slopes, in an area of hay and pasture about 2.5 miles east of Wallowa; 2,600 feet west and 1,320 feet south of the northeast corner of sec. 20, T. 1 N., R. 43 E.

- Ap—0 to 12 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common coarse and very fine roots; common fine and many very fine tubular pores; neutral (pH 6.8); clear smooth boundary.
- A—12 to 18 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and very fine roots; common fine and many very fine tubular pores; neutral (pH 7.0); clear smooth boundary.
- Bw—18 to 36 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium and common very fine roots; many very fine tubular pores; neutral (pH 7.0); gradual wavy boundary.

C—36 to 57 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; massive; soft, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; neutral (pH 7.0); clear wavy boundary.

Ck—57 to 60 inches; dark grayish brown (2.5Y 4/2) silt loam, light brownish gray (2.5Y 6/2) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; moderately alkaline (pH 8.1).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 30 to 40 inches. The particle-size control section averages 18 to 25 percent clay.

The Ap and A horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 1 or 2 moist or dry. They are neutral or slightly alkaline.

The Bw horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 18 to 22 percent clay. It is neutral or slightly alkaline.

The C horizon has hue of 10YR or 2.5Y. Value and chroma are similar to those of the Bw horizon. The C horizon is silt loam with 18 to 27 percent clay. It has 0 to 10 percent gravel. It is neutral to moderately alkaline.

## ***Sopher Series***

The Sopher series consists of deep, well drained soils in canyons and on plateaus and structural benches. These soils formed in mixed volcanic ash and loess over clayey colluvium derived from basalt. Slopes are 15 to 90 percent. Elevation is 1,700 to 4,000 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Sopher stony loam, 15 to 30 percent south slopes, in an area of woodland about 7 miles northwest of the town of Wallowa; 2,400 feet west and 400 feet north of the southeast corner of sec. 26, T. 2 N., R. 41 E.

Oi—1 inch to 0; slightly decomposed twigs and needles.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) stony loam, grayish brown (10YR 5/2) dry; moderate very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; few fine and many very fine roots; few fine and many very fine irregular pores; 20 percent stones and 10 percent gravel; neutral (pH 6.8); abrupt smooth boundary.

A2—2 to 8 inches; dark brown (10YR 3/3) gravelly loam, brown (10YR 5/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and many very fine tubular pores; 15 percent gravel; neutral (pH 6.6); clear smooth boundary.

Bw—8 to 18 inches; brown (10YR 4/3) gravelly clay loam, pale brown (10YR 6/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; few fine and very fine roots; few fine and common very fine tubular pores; 20 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

2Bt1—18 to 24 inches; brown (7.5YR 4/2) very gravelly clay, pinkish gray (7.5YR 6/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, very sticky and moderately plastic; few fine and very fine roots; common very fine tubular pores; common faint clay films on faces of peds; 10 percent cobbles and 40 percent gravel; neutral (pH 6.6); clear wavy boundary.

2Bt2—24 to 44 inches; brown (7.5YR 4/3) very gravelly clay, brown (7.5YR 5/3) dry; moderate medium and coarse subangular blocky structure; hard, firm, very sticky and very plastic; few fine and very fine roots; few very fine tubular pores; many

distinct clay films on faces of peds; 5 percent cobbles and 30 percent gravel; neutral (pH 6.7); abrupt wavy boundary.

3R—44 inches; basalt.

Depth to bedrock is 40 to 60 inches. The upper 10 to 20 inches is influenced by volcanic ash. Depth to the clayey argillic horizon is 10 to 20 inches. The horizon is slightly acid or neutral throughout.

The A horizon has value of 2 or 3 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. The A1 horizon is stony loam with 15 to 25 percent clay. It has 10 to 20 percent stones, 0 to 5 percent cobbles, and 5 to 10 percent gravel. The A2 horizon is gravelly loam with 15 to 25 percent clay. It has 0 to 5 percent stones, 0 to 10 percent cobbles, and 15 to 20 percent gravel.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 3 or 4 moist or dry. It is cobbly loam or gravelly clay loam with 20 to 30 percent clay. It has 0 to 25 percent cobbles and 5 to 25 percent gravel.

The 2Bt horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 4 to 6 dry, and chroma of 2 to 4 moist or dry. It is very cobbly silty clay loam, very cobbly silty clay, or very gravelly clay with 35 to 50 percent clay. It has 5 to 30 percent cobbles and 10 to 40 percent gravel.

## ***Sturgill Series***

The Sturgill series consists of very deep, poorly drained soils on flood plains. These soils formed in silty alluvium. Slopes are 0 to 2 percent. Elevation is 3,400 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Sturgill silt loam, 0 to 2 percent slopes, in a cultivated area about 1 mile southwest of Enterprise; 900 feet north and 1,600 feet west of the southeast corner of sec. 3, T. 2 S., R. 44 E.

Ap—0 to 8 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; soft, friable, slightly sticky and slightly plastic; many fine roots; common very fine irregular pores; neutral (pH 6.8); clear smooth boundary.

A—8 to 18 inches; black (10YR 2/1) silty clay loam, gray (10YR 5/1) dry; weak coarse and medium prismatic structure parting to moderate medium subangular blocky; hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine and common fine tubular pores; neutral (pH 6.7); clear smooth boundary.

Bw—18 to 23 inches; dark grayish brown (2.5Y 4/2) silty clay loam, grayish brown (2.5Y 5/2) dry; moderate fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; brown (10YR 4/3) coatings on faces of peds and many medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation; neutral (pH 6.8); clear smooth boundary.

C1—23 to 30 inches; dark grayish brown (2.5Y 4/2) silt loam, grayish brown (2.5Y 5/2) dry; massive; hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.

2C2—30 to 38 inches; light brownish gray (10YR 6/2) silt loam, white (10YR 8/1) dry; massive; soft, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; neutral (pH 7.0); abrupt smooth boundary.

3Ab—38 to 44 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; massive; hard, friable, moderately sticky and slightly plastic; very few fine roots; few fine tubular pores; neutral (pH 7.2); gradual smooth boundary.

3Cg—44 to 60 inches; dark greenish gray (5BG 4/1) silt loam, greenish gray (5GY 6/1) dry; massive; hard, firm, slightly sticky and slightly plastic; few very fine tubular pores; neutral (pH 7.2).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 12 to 22 inches. The particle-size control section averages 18 to 35 percent clay. Depth to the 2C2 and 3Ab horizons is 30 inches or more. A high water table is present in spring and early in summer. Occasional flooding occurs in spring and early in summer.

The Ap and A horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 0 or 1 moist or dry. The A horizon is silt loam or silty clay loam with 18 to 35 percent clay. Distinct or prominent redoximorphic concentrations are common in the A horizon.

The Bw horizon has hue of 10YR or 2.5Y, value of 3 or 4 moist and 4 to 6 dry, and chroma of 0 to 2 moist or dry. It is silt loam or silty clay loam with 18 to 35 percent clay. It has distinct or prominent redoximorphic concentrations.

The C1 horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam or silty clay loam with 18 to 35 percent clay.

The 2C2 and 3Ab horizons, where present, have value of 3 to 6 moist and 4 to 8 dry and chroma of 1 or 2 moist or dry. They are silt loam or silty clay loam with 18 to 35 percent clay.

The 3Cg horizon, where present, has gleyed colors of 5G or 5GB moist and 5Y or 5GY dry. It has texture similar to that of the 3Ab horizon.

## ***Sweitberg Series***

The Sweitberg series consists of moderately deep, well drained soils on plateaus and structural benches. These soils formed in loess over colluvium and residuum derived from basalt. Slopes are 2 to 15 percent. Elevation is 3,400 to 4,500 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Sweitberg silt loam, 2 to 8 percent slopes, in an area of cropland about 2 miles east of Flora; 1,000 feet south and 1,100 feet east of the northwest corner of sec. 24, T. 5 N., R. 44 E.

Ap—0 to 6 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine irregular pores; slightly acid (pH 6.4); clear smooth boundary.

A—6 to 18 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; neutral (pH 6.6); clear smooth boundary.

AB—18 to 20 inches; very dark grayish brown (10YR 3/2) silty clay loam, brown (10YR 4/3) dry; moderate fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; neutral (pH 6.6); abrupt smooth boundary.

Bt1—20 to 29 inches; dark brown (10YR 3/3) clay, brown (10YR 5/3) dry; strong medium and coarse angular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common very fine tubular pores; common faint clay films on faces of peds and in pores; neutral (pH 6.8); gradual smooth boundary.

2Bt2—29 to 35 inches; dark brown (10YR 3/3) very cobbly clay, brown (10YR 5/3) dry; strong medium angular blocky structure; very hard, firm, very sticky and very plastic; common very fine tubular pores; common faint clay films on faces of peds;

30 percent cobbles and 10 percent gravel; neutral (pH 6.8); abrupt irregular boundary.

3R—35 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 20 to 30 inches thick, and it includes the upper part of the argillic horizon. The particle-size control section has 35 to 50 percent clay. Depth to the clayey argillic horizon is 15 to 25 inches. The profile is slightly acid or neutral throughout.

The Ap and A horizons have value of 2 or 3 moist and 3 or 4 dry, and they have chroma of 1 or 2 moist or dry. They are silt loam with 18 to 27 percent clay. They have 0 to 3 percent cobbles and 0 to 5 percent gravel.

The AB horizon, where present, and the Bt horizon have value of 2 to 4 moist and 3 to 5 dry, and they have chroma of 2 or 3 moist or dry. They are clay, silty clay loam, or silty clay with 35 to 55 percent clay. They have 0 to 3 percent cobbles and 0 to 10 percent gravel.

The 2Bt horizon has color similar to that of the Bt horizon. The 2Bt horizon is very gravelly clay, very cobbly clay, or gravelly silty clay with 40 to 55 percent clay, 5 to 30 percent cobbles, and 10 to 35 percent gravel.

## ***Sweiting Series***

The Sweiting series consists of moderately deep, well drained soils on plateaus and structural benches. These soils formed in loess over basalt. Slopes are 2 to 30 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Sweiting silt loam, 2 to 15 percent slopes, in an area of woodland 0.25 mile south of the Joseph Canyon Viewpoint, on Highway 3, and 100 feet west of highway; 2,500 feet south and 2,000 feet east of the northwest corner of sec. 13, T. 4 N., R. 44 E.

Oi—1 inch to 0; mostly undecomposed pine needles and twigs.

A1—0 to 4 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; slightly acid (pH 6.2); clear wavy boundary.

A2—4 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; many very fine irregular pores; slightly acid (pH 6.2); clear wavy boundary.

Bt1—8 to 13 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; many very fine tubular pores; few faint clay films on faces of peds and in pores; slightly acid (pH 6.3); abrupt wavy boundary.

Bt2—13 to 22 inches; dark brown (10YR 3/3) clay, brown (10YR 5/3) dry; strong medium and coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common fine and few medium roots; many very fine tubular pores; common distinct clay films on faces of peds and in pores; 5 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.

2Bt3—22 to 32 inches; dark brown (10YR 3/3) gravelly clay, brown (10YR 4/3) dry; strong medium and coarse angular blocky structure; very hard, firm, moderately sticky and moderately plastic; few fine and medium roots; common very fine tubular pores; many prominent clay films on faces of peds and in pores;



5 percent cobbles and 15 percent gravel; slightly acid (pH 6.4); abrupt irregular boundary.

3R—32 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 20 to 36 inches thick, and it includes all or part of the argillic horizon. The particle-size control section averages 35 to 45 percent clay and 10 to 35 percent rock fragments. Depth to the clayey argillic horizon is 8 to 15 inches. The profile is slightly acid or moderately acid throughout.

The A horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 20 to 27 percent clay. It has 0 to 2 percent cobbles and 0 to 10 percent gravel.

The Bt horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist or dry. It is silty clay loam, silty clay, or clay with 35 to 45 percent clay. It has 0 to 3 percent cobbles and 0 to 5 percent gravel.

The 2Bt horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 or 3 moist or dry. It is very cobbly silty clay loam, very gravelly clay loam, or gravelly clay with 35 to 45 percent clay. It has 0 to 30 percent cobbles and 5 to 25 percent gravel.

## ***Syrupcreek Series***

The Syrupcreek series consists of moderately deep, well drained soils on mountains, in canyons, and on plateaus. These soils formed in volcanic ash and loess over residuum and colluvium derived from basalt or andesitic tuff breccia. Slopes are 0 to 60 percent. Elevation is 2,800 to 5,800 feet. The mean annual precipitation is 20 to 40 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Syrupcreek silt loam, 0 to 15 percent slopes, in an area of woodland about 9 miles southeast of the town of Joseph, near Canal Creek; 1,300 feet east and 2,000 feet north of the southwest corner of sec. 32, T. 3 S., R. 46 E.

Oi—1 inch to 0; partially decomposed moss and twigs.

A—0 to 3 inches; dark yellowish brown (10YR 3/4) silt loam, yellowish brown (10YR 5/4) dry; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; few fine and common very fine irregular pores; neutral (pH 6.8); gradual smooth boundary.

Bw—3 to 14 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine tubular pores; neutral (pH 6.9); abrupt smooth boundary.

2Btb1—14 to 22 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few fine and very fine tubular pores; few faint clay films on faces of peds; 5 percent stones, 15 percent cobbles, and 20 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

2Btb2—22 to 28 inches; dark brown (7.5YR 3/4) very stony clay loam, brown (7.5YR 5/4) dry; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many distinct clay films on faces of peds and in pores; 20 percent stones, 20 percent cobbles, and 15 percent gravel; slightly acid (pH 6.1); abrupt wavy boundary.

3R—28 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the volcanic ash mantle is 14 to 24 inches. The upper part of the particle-size control section averages 0 to 10 percent rock fragments and 5 to 10 percent clay, and the lower part averages 35 to 75 percent rock fragments and 18 to 27 percent clay. The profile is moderately acid to neutral.

The A horizon has value of 3 to 5 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 to 6 moist and 5 to 8 dry, and chroma of 3 or 4 moist or dry. It is silt loam, very fine sandy loam, or loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

A 2EBb horizon is present in some pedons. It has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 to 7 dry, and chroma of 3 or 4 moist or dry. It is very cobbly loam, very cobbly silt loam, very gravelly silt loam, or very stony loam with 18 to 25 percent clay. It has 35 to 75 percent total rock fragment content, with 5 to 20 percent stones, 10 to 35 percent cobbles, and 5 to 20 percent gravel.

The 2Btb horizon has hue of 10YR or 7.5YR, value of 3 to 5 moist and 5 or 6 dry, and chroma of 2 to 4 moist or dry. It is very cobbly or extremely cobbly loam, very gravelly or very cobbly silt loam, or very cobbly or extremely cobbly clay loam with 20 to 30 percent clay. It has 35 to 75 total rock fragment content, with 0 to 20 percent stones, 15 to 30 percent cobbles, and 10 to 30 percent gravel.

### ***Tamara Series***

The Tamara series consists of very deep, well drained soils on dissected basalt plateaus and in canyons. These soils formed in a mantle of volcanic ash over a mixture of loess, colluvium, and residuum derived from basalt (fig. 24). Slopes are 0 to 60 percent. Elevation is 2,800 to 5,800 feet. The mean annual precipitation is 20 to 40 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Tamara silt loam in an area of Tamara-Syrupcreek complex, 0 to 15 percent slopes, in an area of woodland about 21 miles northwest of the town of Wallowa, along Indian Point Road; 400 feet west and 1,320 feet south of the northeast corner of sec. 3, T. 4 N., R. 41 E.

Oi—1 inch to 0; partially decomposed leaves, needles, and twigs.

A—0 to 4 inches; dark brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and many very fine irregular pores; slightly acid (pH 6.5); abrupt wavy boundary.

Bw1—4 to 15 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium and fine and common very fine roots; few fine and common very fine tubular pores; slightly acid (pH 6.5); abrupt wavy boundary.

Bw2—15 to 30 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium and coarse subangular blocky structure; soft, friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores; slightly acid (pH 6.5); clear wavy boundary.

2Btb1—30 to 51 inches; brown (7.5YR 4/4) silty clay loam, light brown (7.5YR 6/4) dry; moderate medium and coarse subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; many distinct clay films on faces of peds; 10 percent gravel; slightly acid (pH 6.5); gradual wavy boundary.

2Btb2—51 to 60 inches; brown (7.5YR 4/3) silty clay loam, light brown (7.5YR 6/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, firm,





**Figure 24.—Typical pedon of a Tamara soil. Tamara soils formed in a mantle of volcanic ash over mixed loess, colluvium, and residuum derived from basalt. They are on plateaus and in canyons.**

moderately sticky and moderately plastic; few very fine tubular pores; common faint clay films on faces of peds; 10 percent gravel; neutral (pH 6.7).

Depth to bedrock is 60 inches or more. Thickness of the volcanic ash mantle is 20 to 35 inches. The upper part of the particle-size control section has 5 to 15 percent clay and 0 to 10 percent rock fragments. It has 10 to 25 percent volcanic glass. The lower part of the particle-size control section has 20 to 35 percent clay and 5 to 30 percent rock fragments.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5 moist and 5 or 6 dry, and chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel. It is moderately acid or slightly acid.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 to 6 moist and 6 to 8 dry,

and chroma of 3 to 6 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel. It is moderately acid or slightly acid.

The 2Eb horizon, where present, has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 to 4 moist or dry. It is loam with 15 to 20 percent clay. It has 0 to 5 percent cobbles and 5 to 10 percent gravel. It is moderately acid or slightly acid.

The 2Btb1 horizon has hue of 5YR or 7.5YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 3 or 4 moist or dry. It is gravelly loam, clay loam, gravelly clay loam, or silty clay loam with 20 to 35 percent clay. It has 0 to 10 percent cobbles and 5 to 20 percent gravel. It is moderately acid or slightly acid.

The 2Btb2 horizon has color similar to that of the 2Btb1 horizon. The 2Btb2 horizon is loam, gravelly clay loam, clay loam, or silty clay loam with 25 to 35 percent clay. It has 0 to 5 percent cobbles and 5 to 25 percent gravel. It is slightly acid or neutral.

### ***Tamarackcanyon Series***

The Tamarackcanyon series consists of moderately deep, well drained soils on plateaus and structural benches and in canyons. These soils formed in mixed volcanic ash and loess over clayey colluvium derived from basalt. Slopes are 2 to 90 percent. Elevation is 2,800 to 6,200 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Tamarackcanyon loam in an area of Threebuck-Tamarackcanyon complex, 30 to 60 percent north slopes, in an area of woodland about 1.5 miles southwest of the town of Wallowa; 1,100 feet south and 1,400 feet east of the northwest corner of sec. 21, T. 1 N., R. 42 E.

Oi—2 inches to 0; slightly decomposed twigs, needles, and moss.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and many very fine irregular pores; 5 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

Bw1—4 to 9 inches; brown (10YR 4/3) clay loam, light brownish gray (10YR 6/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; few fine and common very fine roots; few fine and many very fine tubular pores; 10 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.

Bw2—9 to 13 inches; brown (7.5YR 4/2) gravelly clay loam, pinkish gray (7.5YR 6/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and common very fine roots; few fine and many very fine tubular pores; 25 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

2Bt1—13 to 25 inches; brown (7.5YR 4/3) very cobbly clay, brown (7.5YR 5/3) dry; moderate very fine subangular blocky structure; hard, firm, moderately sticky and very plastic; few medium and fine and common very fine roots; few fine and common very fine tubular pores; continuous faint clay films on faces of peds; 25 percent cobbles and 25 percent gravel; slightly acid (pH 6.5); clear irregular boundary.

2Bt2—25 to 38 inches; reddish brown (5YR 4/4) extremely stony clay, reddish brown (5YR 5/3) dry; strong fine and medium subangular blocky structure; hard, very firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; continuous distinct clay films on faces of peds; 20 percent stones, 20 percent cobbles, and 20 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

3R—38 inches; basalt.

Depth to bedrock is 20 to 40 inches. The upper 7 to 14 inches is influenced by volcanic ash. Depth to the clayey argillic horizon is 13 to 23 inches. The particle-size

control section averages 35 to 50 percent clay and 35 to 60 percent rock fragments. The profile is moderately acid or slightly acid throughout, except the lower part of the 2Bt horizon is slightly acid or neutral.

The A horizon has value of 2 to 5 moist and 3 to 7 dry, and it has chroma of 2 or 3 moist or dry. It is loam with 10 to 25 percent clay. It has 0 to 10 percent cobbles and 0 to 10 percent gravel.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 5 moist and 4 to 7 dry, and chroma of 2 to 4 moist or dry. It is loam, clay loam, or gravelly clay loam with 25 to 35 percent clay. It has 0 to 10 percent cobbles and 0 to 30 percent gravel.

The 2Bt horizon has hue of 7.5YR or 5YR, value of 3 to 5 moist and 4 to 6 dry, and chroma of 2 to 4 moist or dry. It is cobbly or very cobbly silty clay loam, very cobbly or very stony clay loam, very stony silty clay, or very cobbly or very stony clay with 35 to 50 percent clay. It has 0 to 30 percent stones, 10 to 30 percent cobbles, and 10 to 25 percent gravel.

### ***Tannahill Series***

The Tannahill series consists of deep, well drained soils in canyons. These soils formed in colluvium and residuum derived from basalt. Slopes are 30 to 90 percent. Elevation is 1,700 to 2,800 feet. The mean annual precipitation is 12 to 15 inches, and the mean annual air temperature is 47 to 50 degrees F.

Typical pedon of Tannahill very cobbly loam in an area of Tannahill-Schrier-Rock outcrop complex, 60 to 90 percent slopes, in an area of rangeland about 23 miles east of Enterprise, along the Imnaha River; 2,200 feet north and 2,200 feet east of the southwest corner of sec. 3, T. 1 S., R. 48 E.

- A1—0 to 4 inches; very dark grayish brown (10YR 3/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common fine irregular pores; 5 percent stones, 10 percent cobbles, and 20 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.
- A2—4 to 10 inches; very dark grayish brown (10YR 3/2) very cobbly loam, dark grayish brown (10YR 4/2) dry; weak fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine, common fine, and few medium roots; few fine and medium tubular pores; 5 percent stones, 10 percent cobbles, and 20 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.
- Bt1—10 to 16 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and nonplastic; common very fine and fine and few medium roots; few fine and medium tubular pores and few fine irregular pores; few faint clay films on faces of peds; 10 percent stones, 15 percent cobbles, and 25 percent gravel; moderately alkaline (pH 8.0); gradual smooth boundary.
- Bt2—16 to 29 inches; dark yellowish brown (10YR 3/4) extremely cobbly clay loam, yellowish brown (10YR 5/4) dry; weak fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine and few medium roots; common fine and few medium tubular pores and few fine irregular pores; common faint clay films on faces of peds; 15 percent stones, 20 percent cobbles, and 30 percent gravel; moderately alkaline (pH 8.0); gradual smooth boundary.
- Bk1—29 to 41 inches; brown (10YR 4/3) extremely stony loam, brown (10YR 5/3) dry; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; calcium carbonate on faces of peds, in

pores, and on rock fragments; 25 percent stones, 20 percent cobbles, and 25 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

Bk2—41 to 48 inches; light yellowish brown (10YR 6/4) extremely stony loam, very pale brown (10YR 7/4) dry; weak very fine subangular blocky structure; soft, friable, nonsticky and nonplastic; strongly effervescent; 30 percent stones, 20 percent cobbles, and 20 percent gravel; moderately alkaline (pH 8.0); abrupt irregular boundary.

R—48 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon is 10 to 16 inches. Depth to secondary calcium carbonate is 13 to 30 inches.

The A1 horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is very cobbly loam with 15 to 27 percent clay. It has 5 to 45 percent total rock fragment content, with 5 to 10 percent stones, 10 to 25 percent cobbles, and 20 to 25 percent gravel. It is slightly alkaline or moderately alkaline.

The A2 horizon has color similar to that of the A1 horizon. The A2 horizon is very cobbly loam or very stony loam with 15 to 27 percent clay. It has 35 to 55 percent total rock fragment content, with 5 to 15 percent stones, 10 to 15 percent cobbles, and 15 to 25 percent gravel. It is slightly alkaline or moderately alkaline.

The Bt horizon has value 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is extremely cobbly or extremely stony clay loam, extremely stony loam, or very cobbly loam with 20 to 35 percent clay. It has 45 to 75 percent total rock fragment content, with 10 to 20 percent stones, 10 to 25 percent cobbles, and 20 to 30 percent gravel. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 4 to 6 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is loam or silt loam with 18 to 27 percent clay. It has 40 to 70 percent total rock fragment content, with 20 to 30 percent stones, 10 to 20 percent cobbles, and 10 to 25 percent gravel. It has 5 to 15 percent calcium carbonate equivalent.

## ***Thiessen Series***

The Thiessen series consists of moderately deep, well drained soils in canyons and on structural benches. These soils formed in loess and colluvium derived from basalt. Slopes are 2 to 90 percent. Elevation is 1,600 to 4,000 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Thiessen very cobbly silt loam in an area of Laufer-Thiessen complex, 30 to 60 percent south slopes, in an area of rangeland 0.5 mile west of Troy; 100 feet north and 50 feet west of the southeast corner of sec. 32, T. 6 N., R. 43 E.

A—0 to 3 inches; very dark brown (10YR 2/2) very cobbly silt loam, dark grayish brown (10YR 4/2) dry; strong fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; common very fine irregular pores; 20 percent cobbles and 20 percent gravel; neutral (pH 6.8); clear wavy boundary.

AB—3 to 6 inches; dark brown (7.5YR 3/2) very gravelly clay loam, brown (7.5YR 4/2) dry; strong fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores; 10 percent cobbles and 30 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bt1—6 to 14 inches; very dark brown (10YR 2/3) very gravelly clay loam, brown (10YR 4/3) dry; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine tubular pores; common faint clay films on faces of peds; 10 percent cobbles and 30 percent gravel; neutral (pH 6.6); gradual wavy boundary.



Bt2—14 to 23 inches; very dark brown (10YR 2/3) very cobbly clay, brown (10YR 4/3) dry; strong medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine tubular pores; many distinct clay films on faces of peds and in pores; 25 percent cobbles and 15 percent gravel; neutral (pH 6.6); gradual wavy boundary.

Bt3—23 to 34 inches; dark brown (10YR 3/3) very cobbly clay, brown (10YR 4/3) dry; strong medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine tubular pores; many distinct clay films on faces of peds and in pores; 30 percent cobbles and 20 percent gravel; neutral (pH 6.6); abrupt irregular boundary.

2R—34 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 20 to 35 inches. Depth to the clayey argillic horizon is 6 to 10 inches. The particle-size control section averages 40 to 65 percent angular basalt fragments and 35 to 45 percent clay.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 1 or 2 moist or dry. It is very cobbly silt loam with 20 to 27 percent clay. It has 0 to 5 percent stones, 15 to 25 percent cobbles, and 10 to 30 percent gravel.

The AB horizon, where present, has color similar to that of the A horizon. The AB horizon is very gravelly silty clay loam or very gravelly or very cobbly clay loam with 35 to 40 percent clay. It has 10 to 30 percent cobbles and 10 to 30 percent gravel. It is neutral or slightly alkaline.

The Bt horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 2 to 3 moist or dry. It is very gravelly, very cobbly, or extremely cobbly clay loam or very cobbly clay with 35 to 45 percent clay. It has 10 to 40 percent cobbles and 15 to 40 percent gravel. It is neutral or slightly alkaline.

### ***Thirstygulch Series***

The Thirstygulch series consists of shallow, well drained soils on mountains and plateaus. These soils formed in mixed loess, volcanic ash, and colluvium derived from basalt. Slopes are 15 to 60 percent. Elevation is 4,000 to 6,200 feet. The mean annual precipitation is 20 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Thirstygulch very stony loam in an area of Downeygulch-Thirstygulch complex, 15 to 30 percent slopes, in an area of woodland about 10 miles southeast of Joseph; 500 feet west and 1,600 feet north of the southeast corner of sec. 27, T. 3 S., R. 46 E.

Oi—1 inch to 0; decomposed needles and leaves.

A—0 to 10 inches; very dark grayish brown (10YR 3/2) very stony loam, brown (10YR 5/3) dry; moderate fine granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine irregular pores; 20 percent stones, 15 percent cobbles, and 20 percent gravel; slightly acid (pH 6.3); clear smooth boundary.

Bw—10 to 19 inches; dark brown (10YR 3/3) extremely cobbly silt loam, yellowish brown (10YR 5/4) dry; weak very fine and fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; many very fine and fine and few medium roots; few fine irregular pores; 5 percent stones, 25 percent cobbles, and 35 percent gravel; slightly acid (pH 6.5); abrupt irregular boundary.

R—19 inches; basalt.

Depth to bedrock is 10 to 20 inches. Thickness of the mollic epipedon is 7 to 20 inches. A volcanic ash influence extends to a depth of 10 to 20 inches. The

## ***Threebuck Series***

The Threebuck series consists of deep, well drained soils on hills and in canyons. These soils formed in volcanic ash over clayey colluvium derived from basalt (fig. 25). Slopes are 2 to 90 percent. Elevation is 2,800 to 5,400 feet. The mean annual precipitation is 15 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Threebuck loam in an area of Threebuck-Tamarackcanyon complex, 30 to 60 percent north slopes, in an area of woodland about 4 miles south of the town of Wallowa; 2,600 feet west and 2,600 feet south of the northeast corner of sec. 3, T. 1 S., R. 42 E.

Oi—1 inch to 0; slightly decomposed twigs, needles, and moss.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; few fine and many very fine roots; common fine and many very fine irregular pores; 5 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bw—4 to 14 inches; brown (7.5YR 4/2) cobbly loam, pinkish gray (7.5YR 6/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and many very fine tubular pores; 20 percent cobbles; slightly acid (pH 6.4); abrupt wavy boundary.

2Bt1—14 to 25 inches; brown (7.5YR 4/3) very stony clay, brown (7.5YR 5/3) dry; strong medium and coarse subangular blocky structure; hard, firm, moderately sticky and very plastic; few fine and very fine roots; few fine and common very fine tubular pores; many distinct clay films on faces of peds; 30 percent stones, 15 percent cobbles, and 10 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

2Bt2—25 to 36 inches; brown (7.5YR 4/3) very gravelly clay, brown (7.5YR 5/3) dry; moderate medium and coarse subangular blocky structure; hard, firm, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; many distinct clay films on faces of peds; 15 percent cobbles and 35 percent gravel; slightly acid (pH 6.5); clear wavy boundary.

3Bt3—36 to 47 inches; dark brown (7.5YR 3/3) gravelly clay, brown (7.5YR 4/3) dry; strong coarse subangular blocky structure; very hard, firm, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; continuous prominent clay films on faces of peds and in pores; 10 percent cobbles, 20 percent gravel, and 5 percent soft gravel 2 to 5 millimeters in diameter; neutral (pH 7.0); abrupt wavy boundary.

4R—47 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of volcanic ash mantle and depth to the clayey 2Bt horizon are 14 to 22 inches. The lower part of the particle-size control section averages 35 to 50 percent clay and 35 to 60 percent rock fragments. The profile is moderately acid or slightly acid throughout, except the 3Bt3 horizon is slightly acid or neutral.

The A horizon has value of 2 to 4 moist and 4 to 6 dry, and it has chroma of 1 to 3 moist or dry. It is loam with 5 to 15 percent clay. It has 0 to 5 percent cobbles and 0 to 10 percent gravel.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 6 or 7 dry, and chroma of 2 to 4 moist or dry. It is loam or silt loam with 15 to 25 percent clay. It has 0 to 20 percent cobbles and 0 to 15 percent gravel.



**Figure 25.—Typical pedon of a Threebuck soil. Threebuck soils formed in a mantle of volcanic ash over clayey colluvium and are high in content of angular rock fragments. The soils are on hills and in canyons on dominantly north- and east-facing slopes.**

particle-size control section averages 35 to 75 percent rock fragments and 10 to 18 percent clay.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3 moist and 3 to 5 dry, and chroma of 1 or 2 moist and 2 or 3 dry. It is very stony loam with 10 to 18 percent clay. It has 35 to 65 percent total rock fragment content, with 15 to 25 percent stones, 10 to 15 percent cobbles, and 10 to 20 percent gravel. It is moderately acid to neutral.

The Bw horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 2 to 4 moist or dry. It is extremely cobbly fine sandy loam, very cobbly or extremely cobbly loam, or extremely cobbly silt loam with 10 to 18 percent clay. It has 40 to 85 percent total rock fragment content, with 5 to 15 percent stones, 20 to 30 percent cobbles, and 15 to 40 percent gravel. It is slightly acid to slightly alkaline.



The 2Bt horizon has hue of 7.5YR or 10YR, value of 3 or 4 moist and 5 or 6 dry, and chroma of 2 to 4 moist or dry. It is silty clay loam or clay with 30 to 45 percent clay. It has 0 to 30 percent stones, 15 to 40 percent cobbles, and 10 to 35 percent gravel.

The 3Bt3 horizon has hue of 5YR or 7.5YR, value of 3 or 4 moist and 4 or 5 dry, and chroma of 3 to 6 moist and 3 or 4 dry. It is silty clay loam or clay with 35 to 50 percent clay. It has 0 to 10 percent stones, 10 to 35 percent cobbles, and 20 to 35 percent gravel.

### ***Tippett Series***

The Tippett series consists of deep or very deep, well drained soils on plateaus or structural benches. These soils formed in loess over clayey alluvium or lacustrine deposits. Slopes are 0 to 3 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Tippett silty clay loam in an area of Tippett-Harlow complex, 0 to 3 percent slopes, in an area of rangeland about 13 miles northeast of Joseph; 1,320 feet north and 1,000 feet west of the southeast corner of sec. 4, T. 1 S., R. 46 E.

- Ap—0 to 10 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; strong fine granular structure and moderate medium subangular blocky; slightly hard, friable, moderately sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine irregular pores; 2 percent gravel; neutral (pH 7.0); clear smooth boundary.
- Bw—10 to 14 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine roots; common very fine tubular pores; neutral (pH 7.2); abrupt smooth boundary.
- 2E—14 to 16 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 10 percent cobbles and 3 percent gravel; neutral (pH 7.2); abrupt smooth boundary.
- 3Bt—16 to 30 inches; brown (7.5YR 4/3) clay, brown (10YR 4/3) dry; moderate medium prismatic structure; hard, firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; continuous prominent clay films on faces of peds and lining pores; slightly alkaline (pH 7.4); gradual smooth boundary.
- 3Btkss1—30 to 43 inches; brown (7.5YR 4/4) clay, brown (7.5YR 4/3) dry; moderate medium prismatic structure; very hard, firm, very sticky and very plastic; few very fine tubular pores; many slickensides; continuous prominent clay films on faces of peds and lining pores; secondary calcium carbonate segregated in seams and as few fine soft masses in the lower part; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.
- 3Btkss2—43 to 51 inches; brown (7.5YR 4/3) clay, brown (7.5YR 4/3) dry; moderate medium prismatic structure; hard, firm, very sticky and very plastic; few very fine tubular pores; many slickensides; many distinct clay films on faces of peds; secondary calcium carbonate segregated in seams and as common fine soft masses; strongly effervescent; moderately alkaline (pH 8.1); gradual wavy boundary.
- 3BCK—51 to 60 inches; strong brown (7.5YR 4/6) gravelly clay, strong brown (7.5YR 5/6) dry; weak fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; coatings of secondary calcium

carbonate on rock fragments in the upper part; strongly effervescent; 5 percent cobbles and 20 percent gravel; moderately alkaline (pH 8.0).

Depth to bedrock is 40 to 60 inches on structural benches and more than 60 inches in drainageways and large depressions. The mollic epipedon is 10 to 20 inches thick, and it includes all or part of the Bw horizon. Depth to the clayey subsoil is 15 to 25 inches. Depth to the layer with slickensides and secondary calcium carbonate accumulation is 20 to 35 inches. The profile is neutral or slightly alkaline above the clay and is slightly alkaline or moderately alkaline in the clay.

The A horizon has value of 2 or 3 moist and 3 to 5 dry. It is silty clay loam with 27 to 30 percent clay. It has 0 to 5 percent gravel.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry. It is silt loam or silty clay loam with 25 to 30 percent clay. It is neutral or slightly alkaline.

The 2E horizon has value of 3 to 5 moist and 5 to 7 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, gravelly silt loam, or loam with 20 to 25 percent clay. It has 0 to 15 percent cobbles and 0 to 15 percent gravel and appears as a stone line. It is neutral or slightly alkaline.

The 3Bt horizon has hue of 7.5YR or 10YR. It is clay with 40 to 50 percent clay. It has prismatic or angular blocky structure. It is slightly alkaline or moderately alkaline.

The 3Btkss horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry, and chroma of 3 to 6 moist or dry. It has prismatic or angular blocky structure. Segregated calcium carbonate is absent in some pedons. The horizon is 45 to 55 percent clay. It has 0 to 10 percent calcium carbonate equivalent. It is slightly alkaline or moderately alkaline.

The 3BCK horizon, where present, has color similar to that of the 3Btkss horizon. The 3BCK horizon is clay loam or clay with 35 to 45 percent clay. It has 0 to 10 percent cobbles and 5 to 20 percent gravel. It is slightly alkaline or moderately alkaline.

### ***Tolo Series***

The Tolo series consists of very deep, well drained soils in canyons and on hills, mountains, fans, plateaus, and structural benches. These soils formed in volcanic ash over loess and colluvium derived from basalt. Slopes are 2 to 60 percent. Elevation is 2,800 to 5,000 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Tolo silt loam, 2 to 15 percent slopes, in an area of woodland about 13 miles north of the town of Wallowa or 3 miles west of Maxville; 1,800 feet east and 1,200 feet north of the southwest corner of sec. 7, T. 3 N., R. 42 E.

Oi—1 inch to 0; mostly decomposed twigs and needles.

A—0 to 1 inch; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; common fine and many very fine irregular pores; neutral (pH 6.6); clear wavy boundary.

Bw1—1 to 6 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; common fine and many very fine tubular pores; neutral (pH 6.6); clear wavy boundary.

Bw2—6 to 20 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and many very fine roots; common fine and many very fine tubular pores; slightly acid (pH 6.4); abrupt wavy boundary.

2Bwb—20 to 23 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak coarse subangular blocky structure; slightly hard, friable,

slightly sticky and slightly plastic; common very fine roots; few fine and common very fine tubular pores; slightly acid (pH 6.5); clear wavy boundary.

2Btb1—23 to 33 inches; brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; few fine and common very fine tubular pores; few faint clay films on faces of peds; slightly acid (pH 6.4); clear wavy boundary.

2Btb2—33 to 47 inches; brown (10YR 4/3) silty clay loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores; common faint clay films on faces of peds; slightly acid (pH 6.3); gradual wavy boundary.

2Btb3—47 to 60 inches; brown (10YR 4/3) silty clay loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; few faint clay films on faces of peds; slightly acid (pH 6.1).

Depth to bedrock is 60 inches or more. Thickness of the volcanic ash mantle and depth to the buried subsoil are 20 to 30 inches. The profile is moderately acid to neutral throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 to 3 moist or dry. It is silt loam with 5 to 15 percent clay.

The Bw horizon has value of 3 to 5 moist and 5 or 6 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam with 5 to 15 percent clay.

The 2Bwb and 2Btb horizons have value of 3 or 4 moist and 5 or 6 dry, and they have chroma of 2 to 4 moist or dry. They are silt loam, silty clay loam, cobbly silt loam, or cobbly silty clay loam with 18 to 35 percent clay. They have 0 to 35 percent total rock fragment content, with 0 to 20 percent cobbles and 0 to 15 percent gravel. In some pedons below a depth of 40 inches, the content of rock fragments is as much as 50 percent.

## ***Topper Series***

The Topper series consists of very deep, well drained soils on hills. These soils formed in loess with an influence of volcanic ash in the upper part. Slopes are 2 to 30 percent. Elevation is 3,400 to 4,500 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Topper silt loam, 2 to 8 percent slopes, in a cultivated area about 6 miles north of Joseph; in the center of sec. 29, T. 1 S., R. 45 E.

Ap—0 to 6 inches; very dark brown (10YR 2/2) silt loam, grayish brown (10YR 5/2) dry; weak thin platy structure; soft, friable, slightly sticky and slightly plastic; many very fine roots; few very fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.

A—6 to 11 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; neutral (pH 6.8); abrupt irregular boundary.

C—11 to 15 inches; brown (10YR 4/3) silt loam, light gray (10YR 7/2) dry; massive; soft, very friable, nonsticky and nonplastic; few fine roots; common very fine tubular pores; slightly alkaline (pH 7.4); abrupt irregular boundary.

2Bwb—15 to 25 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak coarse prismatic structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; many fine tubular pores; neutral (pH 7.2); clear smooth boundary.

2Bkb1—25 to 35 inches; dark yellowish brown (10YR 4/4) silty clay loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine roots; many fine tubular pores; mycelium calcium carbonate; strongly effervescent; strongly alkaline (pH 8.6); gradual boundary.

2Bkb2—35 to 60 inches; brown (10YR 5/3) silt loam, light gray (10YR 7/2) dry; massive; soft, friable, slightly sticky and slightly plastic; few fine roots; many fine tubular pores; soft segregated calcium carbonate throughout; strongly effervescent; strongly alkaline (pH 8.6).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 16 inches. Depth to the calcic horizon is 20 to 40 inches. The calcic horizon has a calcium carbonate equivalent of 15 to 20 percent. The particle-size control section has 18 to 30 percent clay. The upper 10 to 16 inches of the profile is influenced by volcanic ash.

The Ap and A horizons have value of 2 or 3 moist and 4 or 5 dry, and they have chroma of 2 or 3 moist or dry. They are silt loam with 18 to 27 percent clay.

The C horizon, where present, has value of 3 or 4 moist and 5 to 7 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam with 18 to 27 percent clay. It is neutral or slightly alkaline.

The 2Bwb horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with 18 to 27 percent clay. It is neutral or slightly alkaline.

The 2Bkb1 horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam or silty clay loam with 18 to 30 percent clay. It is moderately alkaline or strongly alkaline with soft segregated mycelium calcium carbonate in the lower part.

The 2Bkb2 horizon has value of 4 or 5 moist and 6 or 7 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam or loam with 18 to 27 percent clay. It has 0 to 5 percent cobbles and 0 to 10 percent gravel.

### ***Troutmeadows Series***

The Troutmeadows series consists of moderately deep, well drained soils on mountains. These soils formed in volcanic ash over colluvium derived from basalt. Slopes are 2 to 90 percent. Elevation is 5,400 to 7,000 feet. The mean annual precipitation is 30 to 45 inches, and the mean annual air temperature is 35 to 41 degrees F.

Typical pedon of Troutmeadows silt loam in an area of Mount Emily-Troutmeadows complex, 15 to 30 percent north slopes, in an area of woodland about 13 miles southeast of Joseph; 2,300 feet south and 750 feet west of the northeast corner of sec. 14, T. 4 S., R. 46 E.

Oi—1 inch to 0; partially decomposed needles and twigs.

A—0 to 3 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine irregular pores; moderately acid (pH 5.7); gradual smooth boundary.

Bw—3 to 16 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and common very fine roots; few fine and common very fine tubular pores; moderately acid (pH 5.9); abrupt smooth boundary.

2Eb—16 to 23 inches; dark yellowish brown (10YR 4/4) very cobbly loam, light yellowish brown (10YR 6/4) dry; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium and fine and

common very fine roots; few fine and very fine tubular pores; 20 percent cobbles and 20 percent gravel; slightly acid (pH 6.1); clear wavy boundary.

2Bwb—23 to 30 inches; dark brown (10YR 3/3) very cobbly loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few very fine tubular pores; 35 percent cobbles and 20 percent gravel; slightly acid (pH 6.2); abrupt wavy boundary.

2R—30 inches; basalt.

Depth to bedrock is 20 to 40 inches. Thickness of the volcanic ash mantle is 14 to 20 inches. The upper part of the particle-size control section has 5 to 10 percent clay and 0 to 10 percent rock fragments. It has 5 to 10 percent volcanic glass. The lower part of the particle-size control section has 10 to 20 percent clay and 40 to 75 percent rock fragments. The profile is moderately acid or slightly acid throughout.

The A horizon has value of 4 or 5 dry and chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent gravel.

The Bw horizon has value of 3 to 5 moist and 5 to 7 dry, and it has chroma of 3 to 5 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 10 percent total rock fragment content, with 0 to 5 percent stones, 0 to 5 percent cobbles, and 0 to 10 percent gravel.

The 2Eb horizon has value of 3 or 4 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is very cobbly silt loam, very cobbly loam, or very gravelly loam with 10 to 15 percent clay. It has 40 to 60 percent total rock fragment content, with 0 to 10 percent stones, 20 to 30 percent cobbles, and 20 to 40 percent gravel.

The 2Bwb horizon has value of 3 to 5 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. It is very cobbly silt loam, very cobbly loam, or extremely gravelly loam with 10 to 20 percent clay. It has 55 to 75 percent total rock fragment content, with 0 to 10 percent stones, 15 to 50 percent cobbles, and 20 to 60 percent gravel.

### ***Tuckerdowns Series***

The Tuckerdowns series consists of very deep, well drained soils on terraces. These soils formed in alluvium with an influence of loess in the upper part (fig. 26). Slopes are 2 to 30 percent. Elevation is 3,700 to 4,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Tuckerdowns gravelly loam, 2 to 8 percent slopes, in an area of rangeland 0.5 mile north of Enterprise; 1,400 feet east and 1,000 feet south of the northwest corner of sec. 35, T. 1 S., R. 44 E.

A1—0 to 3 inches; very dark brown (10YR 2/2) gravelly loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; 20 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.

A2—3 to 10 inches; very dark brown (10YR 2/2) gravelly loam, dark grayish brown (10YR 4/2) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; 25 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

Bw—10 to 17 inches; very dark grayish brown (10YR 3/2) gravelly loam, grayish brown (10YR 5/2) dry; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; strongly effervescent; 25 percent gravel; moderately alkaline (pH 8.0); abrupt wavy boundary.





**Figure 26.—Typical pedon of a Tuckerdowns soil. Tuckerdowns soils formed in loamy alluvium, are high in content of rounded gravel, and have calcium carbonate accumulations in the lower layers. The soils are on stream terraces above the flood plains.**

- Bk1—17 to 33 inches; brown (10YR 4/3) very gravelly sandy clay loam, pale brown (10YR 6/3) dry; massive; slightly hard, firm, slightly sticky and slightly plastic; common medium irregularly shaped soft masses of segregated calcium carbonate and thin coatings of calcium carbonate on gravel; strongly effervescent; 50 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.
- Bk2—33 to 60 inches; multicolored extremely gravelly sandy loam; massive; slightly hard, firm, nonsticky and nonplastic; violently effervescent; 70 percent calcium-carbonate-coated gravel; moderately alkaline (8.0).

Depth to bedrock is 60 inches or more. The mollic epipedon is 10 to 20 inches thick, and it includes the Bw horizon. Depth to the very gravelly or extremely gravelly calcic horizon is 15 to 24 inches. The particle-size control section averages more than 18 percent clay and more than 35 percent rock fragments.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is gravelly loam with 10 to 20 percent clay. It has 15 to 30 percent gravel. It is slightly alkaline or moderately alkaline.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is gravelly loam or gravelly silt loam with 18 to 27 percent clay. It has 15 to 35 percent gravel. The calcium carbonate equivalent is 0 to 5 percent. The horizon is slightly alkaline or moderately alkaline.

The Bk horizon has value of 3 to 5 moist and 5 to 7 dry, and it has chroma of 3 or 4 moist or dry. The Bk1 horizon is very gravelly loam or very gravelly sandy clay loam with 18 to 27 percent clay. It has 35 to 60 percent gravel. The Bk2 horizon is extremely gravelly loam or very gravelly or extremely gravelly sandy loam with 10 to 20 percent clay. It has 0 to 3 percent cobbles and 35 to 75 percent gravel. The calcium carbonate equivalent is 15 to 20 percent.

### ***Vandamine Series***

The Vandamine series consists of very deep, well drained soils on mountains. These soils formed in volcanic ash over colluvium and residuum derived from argillite. Slopes are 30 to 90 percent. Elevation is 5,400 to 6,800 feet. The mean annual precipitation is 30 to 45 inches, and the mean annual air temperature is 35 to 41 degrees F.

Typical pedon of Vandamine silt loam in an area of Vandamine-Bordengulch-Rock outcrop complex, 60 to 90 percent north slopes, in an area of woodland about 6.5 miles south of Lostine; 2,400 feet east and 600 feet north of the southwest corner of sec. 11, T. 2 S., R. 43 E.

Oi—1 inch to 0; partially decomposed needles, twigs, and grass.

A—0 to 7 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few medium and fine and many very fine roots; few fine and many very fine tubular pores; 5 percent gravel; slightly acid (pH 6.4); gradual smooth boundary.

Bw1—7 to 13 inches; dark yellowish brown (10YR 4/4) loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine and common very fine roots; few fine and common very fine tubular pores; 10 percent gravel; slightly acid (pH 6.5); gradual wavy boundary.

2Bw2—13 to 28 inches; dark yellowish brown (10YR 4/4) very gravelly loam, yellowish brown (10YR 5/4) dry; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few fine and common very fine roots; common very fine tubular pores; 5 percent cobbles and 30 percent gravel; neutral (pH 6.6); clear wavy boundary.

2Bw3—28 to 39 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, light yellowish brown (10YR 6/4) dry; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 10 percent cobbles and 30 percent gravel; moderately acid (pH 6.0); gradual wavy boundary.

2C—39 to 60 inches; dark yellowish brown (10YR 4/4) very cobbly loam, light yellowish brown (10YR 6/4) dry; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 20 percent cobbles and 20 percent gravel; moderately acid (pH 6.0).

Depth to bedrock is 60 inches or more. The volcanic ash mantle is 7 to 14 inches thick, and it has 10 to 20 percent volcanic glass. The particle-size control section has 5 to 18 percent clay and 35 to 60 percent rock fragments.



The A horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with 5 to 15 percent clay. It has 0 to 15 percent total rock fragment content, with 0 to 5 percent cobbles and 0 to 10 percent gravel. It is slightly acid or neutral.

The Bw1 horizon has value of 4 or 5 moist and 5 to 7 dry, and it has chroma of 4 to 6 moist or dry. It is silt loam, gravelly silty loam, or loam with 5 to 15 percent clay. It has 10 to 30 percent total rock fragment content, with 0 to 5 percent cobbles and 10 to 30 percent gravel. It is slightly acid or neutral.

The 2Bw2 horizon has color similar to that of the Bw1 horizon. The 2Bw2 horizon is gravelly loam, very gravelly loam, or very gravelly sandy loam with 5 to 18 percent clay. It has 0 to 10 percent cobbles and 20 to 55 percent gravel. It is slightly acid or neutral.

The 2Bw3 horizon has value of 4 or 5 moist and 6 or 7 dry, and it has chroma of 4 to 6 moist or dry. It is very gravelly or extremely gravelly loam, very gravelly sandy loam, or extremely gravelly sandy loam with 5 to 18 percent clay. It has 35 to 65 percent total rock fragment content, with 5 to 10 percent cobbles and 30 to 55 percent gravel. It is strongly acid to slightly acid.

The 2C horizon has hue of 2.5Y or 10YR, value of 4 to 6 moist and 6 or 7 dry, and chroma of 4 to 6 moist or dry. It is extremely gravelly loam, extremely gravelly sandy loam, very cobbly loam, or extremely gravelly loamy sand with 5 to 15 percent clay. It has 40 to 70 percent total rock fragment content, with 5 to 20 percent cobbles and 20 to 55 percent gravel. It is strongly acid to slightly acid.

## ***Veazie Series***

The Veazie series consists of very deep, well drained soils on flood plains. These soils formed in stratified mixed alluvium. Slopes are 0 to 3 percent. Elevation is 1,600 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Veazie loam, 0 to 3 percent slopes, in a pasture about 2 miles northwest of Lostine; 2,600 feet west and 2,500 feet south of the northeast corner of sec. 4, T. 1 S., R. 43 E.

- A1—0 to 4 inches; black (10YR 2/1) loam, dark grayish brown (10YR 4/2) dry; moderate very fine subangular blocky structure parting to weak very fine granular; slightly hard, friable, slightly sticky and slightly plastic; few medium and many very fine roots; many very fine irregular pores; 5 percent gravel; neutral (pH 6.9); abrupt smooth boundary.
- A2—4 to 9 inches; black (10YR 2/1) loam, dark grayish brown (10YR 4/2) dry; moderate fine, medium, and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; 5 percent gravel; neutral (pH 6.9); gradual wavy boundary.
- A3—9 to 19 inches; black (10YR 2/1) loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; few fine and common very fine tubular pores; 5 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bw—19 to 28 inches; very dark brown (10YR 2/2) loam, grayish brown (10YR 5/2) dry; moderate medium and coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; few fine and common very fine tubular pores; 5 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
- 2C1—28 to 34 inches; dark brown (10YR 3/3) very gravelly loamy sand, yellowish brown (10YR 5/4) dry; weak fine granular and subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; 10 percent cobbles and 45 percent gravel; neutral (pH 7.0); clear wavy boundary.

2C2—34 to 60 inches; dark brown (10YR 3/3) very gravelly sand, brown (10YR 5/3) dry; single grain; loose, nonsticky and nonplastic; common very fine roots; 5 percent cobbles and 50 percent gravel; neutral (pH 7.0).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 20 to 30 inches. Depth to the very gravelly and sandy substratum is 20 to 30 inches. A high water table is present in winter and early in summer. Occasional flooding occurs in spring and early in summer.

The A horizon has chroma of 1 or 2 moist or dry. It is loam with 10 to 18 percent clay. It has 0 to 10 percent gravel.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is loam, gravelly loam, or silt loam with 10 to 18 percent clay. It has 0 to 5 percent cobbles and 0 to 15 percent gravel.

The 2C horizon has hue of 7.5YR or 10YR, value of 2 or 3 moist and 4 or 5 dry, and chroma of 2 to 4 moist or dry. It is very gravelly or extremely gravelly sand or very gravelly loamy sand with 0 to 5 percent clay. It has 35 to 75 percent total rock fragment content, with 5 to 20 percent cobbles and 30 to 60 percent gravel. In some pedons redoximorphic concentrations are between depths of 40 and 60 inches.

## ***Voats Series***

The Voats series consists of very deep, well drained soils on flood plains. These soils formed in stratified mixed alluvium. Slopes are 0 to 3 percent. Elevation is 1,600 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Voats fine sandy loam in an area of Voats-Veazie complex, 0 to 3 percent slopes, in a pasture about 2 miles northwest of Lostine; 2,600 feet east and 2,400 feet north of the southwest corner of sec. 4, T. 1 S., R. 43 E.

A1—0 to 3 inches; very dark brown (10YR 2/2) fine sandy loam, brown (10YR 4/3) dry; moderate fine and very fine granular structure and strong thin and medium platy; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine irregular pores; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 9 inches; very dark brown (10YR 2/2) fine sandy loam, brown (10YR 5/3) dry; moderate medium and coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; neutral (pH 7.0); clear wavy boundary.

A3—9 to 15 inches; very dark brown (10YR 2/2) fine sandy loam, brown (10YR 5/3) dry; weak very fine and fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; neutral (pH 7.0); abrupt wavy boundary.

2C1—15 to 23 inches; very dark brown (10YR 2/2) very cobbly loamy sand, brown (10YR 5/3) dry; weak very fine and fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine tubular pores; 25 percent cobbles and 25 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

2C2—23 to 60 inches; very dark grayish brown (10YR 3/2) very cobbly sand, brown (10YR 4/3) dry; single grain; loose, nonsticky and nonplastic; common very fine roots in the upper part; 10 percent stones, 25 percent cobbles, and 25 percent gravel; neutral (pH 6.8).

Depth to bedrock is 60 inches or more. Thickness of the mollic epipedon is 10 to 20 inches. Depth to the stratified very cobbly and sandy substratum is 10 to 20 inches. The particle-size control section averages more than 35 percent rock

fragments and more than 50 percent very fine sand. A high water table is present in winter and early in summer. Occasional flooding occurs in spring and early in summer.

The A horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 1 to 3 moist or dry. It is fine sandy loam with 5 to 10 percent clay. It has 0 to 10 percent gravel.

The 2C horizon is stratified very cobbly sand to loamy sand with 2 to 5 percent clay. It has 0 to 10 percent stones, 0 to 30 percent cobbles, and 25 to 45 percent gravel.

### ***Volstead Series***

The Volstead series consists of deep, well drained soils on structural benches, canyons, and dissected plateaus. These soils formed in mixed loess and volcanic ash over colluvium and residuum derived from volcanic tuff over basalt. Slopes are 0 to 60 percent. Elevation is 2,800 to 4,600 feet. The mean annual precipitation is 17 to 24 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Volstead silt loam in an area of Volstead-Quirk-Bocker complex, 0 to 15 percent slopes, in an area of woodland about 23 miles north of Enterprise, near Peavine Creek; 2,640 feet east and 50 feet south of the northwest corner of sec. 16, T. 3 N., R. 46 E.

Oi—1 inch to 0; needles, twigs, and logs.

A—0 to 9 inches; dark reddish brown (5YR 3/2) silt loam, dark reddish gray (5YR 4/2) dry; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine, medium, and coarse and many fine roots; common fine irregular pores and few fine tubular pores; slightly acid (pH 6.5); clear wavy boundary.

Bw—9 to 13 inches; dark brown (7.5YR 3/2) silt loam, brown (7.5YR 4/3) dry; weak coarse subangular blocky structure parting to moderate fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; few fine irregular and tubular pores; 5 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

2EBb—13 to 23 inches; reddish brown (5YR 5/3) silt loam, brown (7.5YR 5/3) dry; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and common fine, medium, and coarse roots; few fine tubular pores; 10 percent gravel; neutral (pH 7.0); gradual smooth boundary.

2Btb1—23 to 38 inches; brown (7.5YR 4/3) gravelly clay loam, brown (7.5YR 5/3) dry; moderate fine and very fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine, medium, and coarse roots; few fine tubular pores; common faint clay films on faces of peds; 15 percent gravel; neutral (pH 7.3); gradual smooth boundary.

2Btb2—38 to 48 inches; brown (7.5YR 4/4) gravelly clay, brown (7.5YR 5/4) dry; moderate fine subangular blocky structure; very hard, firm, very sticky and very plastic; few fine and medium roots; few fine tubular pores; few clay films on faces of peds; 20 percent gravel; slightly alkaline (pH 7.5); abrupt irregular boundary.

3R—48 inches; basalt.

Depth to bedrock is 40 to 60 inches. Thickness of the mollic epipedon and the mixed loess and volcanic ash upper part is 10 to 20 inches. The particle-size control section has 35 to 45 percent clay and 5 to 35 percent rock fragments. The profile has hue of 7.5YR or 5YR throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 10 to 15 percent clay. It has 0 to 10 percent gravel. It is slightly acid or neutral.

The Bw horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam or loam with 10 to 15 percent clay. It has 0 to 10 percent gravel. It is slightly acid or neutral.

The 2Eb horizon has value of 4 or 5 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist and 3 or 4 dry. It is silt loam, gravelly silty loam, clay loam, gravelly loam, or loam with 18 to 30 percent clay. It has 0 to 5 percent cobbles and 0 to 20 percent gravel.

The 2Btb horizon has value of 4 or 5 dry and chroma of 3 or 4 moist and 3 to 6 dry. It is cobbly or gravelly clay, gravelly clay loam, or clay loam with 35 to 45 percent clay. It has 0 to 20 percent cobbles and 5 to 20 percent gravel. It is neutral or slightly alkaline.

### ***Wallowa Series***

The Wallowa series consists of moderately deep, well drained soils on plateaus and structural benches. These soils formed in loess and colluvium derived from basalt. Slopes are 2 to 15 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Wallowa silt loam in an area of Wallowa-Bocker complex, 2 to 15 percent slopes, in an area of rangeland about 6 miles east of the town of Wallowa; 1,400 feet north and 2,500 feet west of the southeast corner of sec. 10, T. 1 N., R. 43 E.

A1—0 to 5 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; common irregular pores; 10 percent fine gravel; few dark brown krotovinas; slightly acid (pH 6.2); clear wavy boundary.

A2—5 to 11 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; weak coarse subangular blocky structure; friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; 10 percent fine gravel; few dark brown krotovinas; slightly acid (pH 6.3); clear wavy boundary.

Bw1—11 to 22 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; weak medium and coarse prismatic structure and weak coarse subangular blocky; friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; 10 percent fine gravel; common large krotovinas; neutral (pH 6.6); clear wavy boundary.

Bw2—22 to 29 inches; dark yellowish brown (10YR 3/4) silt loam, yellowish brown (10YR 5/4) dry; weak coarse prismatic structure and weak coarse subangular blocky; friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; 10 percent fine gravel; common large krotovinas; neutral (pH 6.8); abrupt wavy boundary.

2R—29 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 20 to 30 inches thick, and it includes the upper part of the Bw horizon. The profile is slightly acid or neutral.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 18 to 27 percent clay. It has 5 to 10 percent gravel. The organic matter content is 4 to 6 percent.

The Bw horizon has value of 3 or 4 moist and 4 or 5 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam or gravelly silt loam with 18 to 27 percent clay. It has 10 to 20 percent gravel.

### ***Watama Series***

The Watama series consists of moderately deep, well drained soils on hills, structural benches, and plateaus. These soils formed in loess and colluvium derived from basalt. Slopes are 2 to 15 percent. Elevation is 2,700 to 3,400 feet. The mean annual precipitation is 13 to 17 inches, and the mean annual air temperature is 45 to 50 degrees F.

Typical pedon of Watama silt loam in an area of Watama-Rockly complex, 2 to 15 percent slopes, in an area of rangeland about 1 mile southeast of the town of Wallowa; 1,760 feet east and 400 feet north of the southwest corner of sec. 13, T. 1 N., R. 42 E.

- A1—0 to 5 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; strong very thin and thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and many very fine roots; few fine and many very fine irregular pores; 10 percent gravel; neutral (pH 7.2); abrupt smooth boundary.
- A2—5 to 10 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; 10 percent gravel; neutral (pH 7.2); gradual wavy boundary.
- Bw—10 to 25 inches; very dark brown (10YR 2/2) silty clay loam, brown (10YR 4/3) dry; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine roots; many very fine tubular pores; 5 percent gravel; neutral (pH 7.2); abrupt wavy boundary.
- 2R—25 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 20 to 30 inches thick, and it includes all or part of the Bw horizon. The profile has hue of 10YR or 7.5YR throughout.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 12 to 18 percent clay. It has 0 to 10 percent gravel.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 or 3 moist or dry. It is loam, gravelly silt loam, or silty clay loam with 18 to 35 percent clay. The lower part of the horizon has 0 to 5 percent cobbles and 0 to 15 percent gravel. The horizon is neutral or slightly alkaline.

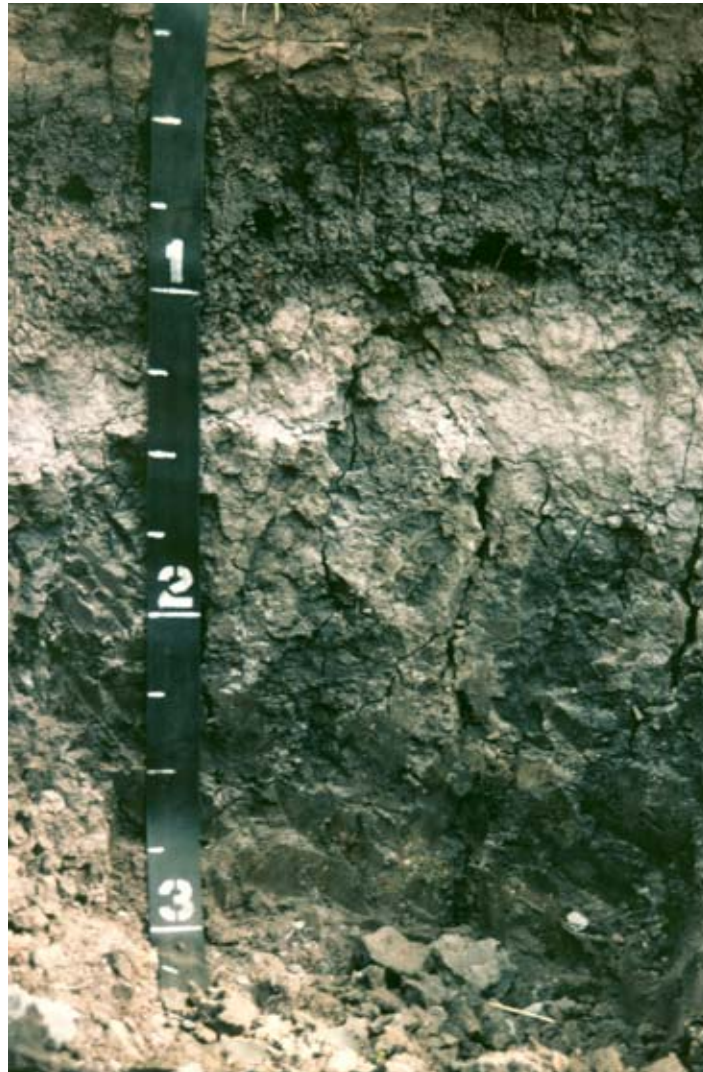
### ***Wilkins Series***

The Wilkins series consists of very deep, somewhat poorly drained soils on plateaus and in meadows of mountain valleys. These soils formed in loess with minor amounts of volcanic ash over alluvium derived from basalt (fig. 27). Slopes are 0 to 5 percent. Elevation is 3,400 to 5,000 feet. The mean annual precipitation is 17 to 30 inches, and the mean annual air temperature is 41 to 45 degrees F.

Typical pedon of Wilkins silt loam, 0 to 5 percent slopes, in an area of native pasture about 12 miles north of the town of Wallowa, at Maxville Meadows; 1,900 feet west and 600 feet south of the northeast corner of sec. 16, T. 3 N., R. 42 E.

- A1—0 to 4 inches; black (10YR 2/1) silt loam, very dark gray (10YR 3/1) dry; weak very thin platy structure and weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many irregular pores; moderately acid (pH 5.9); abrupt smooth boundary.
- A2—4 to 10 inches; black (10YR 2/1) silt loam, very dark gray (10YR 3/1) dry; weak medium platy structure and weak very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many irregular pores; few





**Figure 27.—Typical pedon of a Wilkins soil. Wilkins soils formed in loess over dense clay and are in mountain meadows. An albic horizon is above the clayey material.**

fine faint dark brown (10YR 3/3) redoximorphic concentrations as masses; moderately acid (pH 5.9); abrupt wavy boundary.

A3—10 to 19 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and common fine tubular pores; few medium distinct brown (7.5YR 4/4) redoximorphic concentrations as masses; moderately acid (pH 5.9); abrupt wavy boundary.

E1—19 to 23 inches; grayish brown (10YR 5/2) silt loam, pale brown (10YR 6/3) dry; weak coarse granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and common fine tubular pores; common thin clean bleached silt and sand coatings; few black and red concretions larger than 2 millimeters; moderately acid (pH 5.8); abrupt wavy boundary.

E2—23 to 25 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine

roots; common very fine and few fine tubular pores; common thin clean bleached silt and sand coatings; few black and red concretions larger than 2 millimeters; moderately acid (pH 5.8); abrupt wavy boundary.

2Bt1—25 to 32 inches; dark brown (10YR 3/3) silty clay, brown (10YR 4/3) dry; moderate medium columnar structure; extremely hard, extremely firm, very sticky and very plastic; common very fine roots; many very fine tubular pores; continuous prominent clay films; few clean silt and sand coatings; slightly acid (pH 6.2); clear wavy boundary.

2Bt2—32 to 52 inches; brown (10YR 4/3) silty clay, brown (10YR 5/3) dry; moderate medium prismatic structure and moderate fine angular blocky; extremely hard, extremely firm, very sticky and very plastic; common very fine roots; many very fine tubular pores; continuous distinct clay films; few clean silt and sand coatings; neutral (pH 6.6); clear wavy boundary.

3C1—52 to 70 inches; light olive brown (2.5Y 5/3) loam, light yellowish brown (2.5Y 6/3) dry; massive; hard, friable, slightly sticky and slightly plastic; few very fine tubular pores; few fine faint redoximorphic concentrations as masses; moderately acid (pH 5.8); gradual wavy boundary.

3C2—70 to 76 inches; light olive brown (2.5Y 5/3) gravelly clay loam, light yellowish brown (2.5Y 6/3) dry; massive; hard, friable, slightly sticky and slightly plastic; 20 percent gravel; common medium distinct redoximorphic concentrations as masses; moderately acid (pH 5.7).

Depth to bedrock is 60 inches or more. Depth to the clayey argillic horizon is 15 to 30 inches. Few to common black and red concretions 0.5 to 3.0 millimeters in size are in the E and 2Bt horizons. A high water table is present in winter to early in summer. No flooding to occasional flooding occurs in winter and spring.

The A horizon has value of 2 or 3 moist and 3 to 5 dry, and it has chroma of 0 or 1 in the upper part and 1 to 3 in the lower part. Faint or distinct redoximorphic concentrations are below a depth of 4 inches. The horizon is silt loam with 18 to 27 percent clay. It is moderately acid to neutral.

The E horizon has value of 4 to 6 moist and 6 to 8 dry, and it has chroma of 1 or 2 moist in more than one-half of the matrix. The horizon is silt loam with 18 to 27 percent clay. It is moderately acid to neutral.

The 2Bt horizon has hue of 10YR or 2.5Y, value of 3 or 4 moist and 4 to 6 dry, and chroma of 1 to 3 moist. It is silty clay or clay with 40 to 60 percent clay. It has 0 to 10 percent gravel, mostly in the lower part. It is moderately acid to neutral.

The 3C horizon has hue of 5Y, 2.5Y, or 10YR, value of 3 to 6 moist and 4 to 7 dry, and chroma of 1 to 4 moist or dry. It is loam, gravelly clay loam, or silty clay loam with 15 to 35 percent clay. It has 0 to 25 percent gravel.

## ***Wintercanyon Series***

The Wintercanyon series consists of shallow, well drained soils on mountains. These soils formed in colluvium and residuum derived from metasedimentary rock. Slopes are 60 to 90 percent. Elevation is 3,800 to 5,400 feet. The mean annual precipitation is 25 to 35 inches, and the mean annual air temperature is 41 to 44 degrees F.

Typical pedon of Wintercanyon very gravelly silt loam in an area of Slicklog-Wintercanyon-Rock outcrop complex, 60 to 90 percent north slopes, in an area of woodland about 6 miles south of Lostine; 2,500 feet north and 900 feet east of the southwest corner of sec. 11, T. 2 S., R. 43 E.

Oi—1 inch to 0; partially decomposed twigs, grass, and needles.

A—0 to 9 inches; very dark brown (10YR 2/2) very gravelly silt loam, dark brown



(10YR 3/3) dry; moderate very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; few medium and fine and common very fine roots; few fine and common very fine irregular pores; 5 percent cobbles and 30 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

Bw—9 to 18 inches; very dark brown (10YR 2/2) very gravelly loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; common very fine irregular pores; 40 percent gravel; slightly acid (pH 6.1); abrupt wavy boundary.

R—18 inches; fractured metasedimentary rock.

Depth to bedrock is 10 to 20 inches. Thickness of the mollic epipedon is 11 to 16 inches. The particle-size control section has 10 to 18 percent clay and 35 to 75 percent rock fragments.

The A horizon has value of 2 or 3 moist and 3 or 4 dry. It is very gravelly silt loam with 10 to 18 percent clay. It has 35 to 55 percent total rock fragment content, with 0 to 5 percent stones, 5 to 10 percent cobbles, and 30 to 40 percent gravel. It is moderately acid or slightly acid.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 2 to 4 moist or dry. It is very gravelly or extremely cobbly silt loam, very cobbly loam, or very gravelly loam with 10 to 20 percent clay. It has 35 to 75 percent total rock fragment content, with 0 to 5 percent stones, 0 to 40 percent cobbles, and 35 to 45 percent gravel. It is strongly acid to slightly acid.

## ***Wolot Series***

The Wolot series consists of very deep, well drained soils on fans and toeslopes of hills. These soils formed in volcanic ash over loess and colluvium. Slopes are 0 to 30 percent. Elevation is 1,900 to 3,400 feet. The mean annual precipitation is 15 to 24 inches, and the mean annual air temperature is 45 to 48 degrees F.

Typical pedon of Wolot silt loam, 0 to 15 percent slopes, in an area of woodland about 2.5 miles south of the community of Rondowa or 6.0 miles northwest of Minam; 1,000 feet south and 2,000 feet west of the northeast corner of sec. 2, T. 2 N., R. 40 E.; profile is in Union County adjacent to the Wallowa-Union County line and on the east side of the Wallowa River.

Oi—1 inch to 0; mostly needles, twigs, leaves, and moss.

A—0 to 12 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium and fine and common very fine tubular pores; neutral (pH 6.6); clear smooth boundary.

Bw—12 to 21 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few coarse and fine and common very fine roots; few fine and common very fine tubular pores; neutral (pH 6.6); clear wavy boundary.

2Bwb1—21 to 34 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; common fine and very fine tubular pores; neutral (pH 6.7); clear wavy boundary.

2Bwb2—34 to 48 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; strong coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few fine and very fine roots; common fine and very fine tubular pores; neutral (pH 6.6); clear wavy boundary.

2Btb—48 to 60 inches; brown (10YR 4/3) silty clay loam, pale brown (10YR 6/3) dry; strong coarse subangular blocky structure; hard, firm, moderately sticky and moderately plastic, few very fine roots; few very fine tubular pores; common distinct clay films on faces of peds and in pores; neutral (pH 6.7).

Depth to basalt is 60 inches or more. Thickness of the volcanic ash mantle and depth to the buried soil are 20 to 35 inches.

The A horizon has value of 2 or 3 moist and 4 to 6 dry, and it has chroma of 1 to 3 moist or dry. It is silt loam with 5 to 15 percent clay.

The Bw horizon has value of 3 to 5 moist and 6 or 7 dry, and it has chroma of 2 to 4 moist or dry. It is silt loam with 5 to 15 percent clay.

The 2Bwb and 2Btb horizons have value of 3 or 4 moist and 5 or 6 dry, and they have chroma of 2 to 4 moist or dry. They are silt loam or silty clay loam with 18 to 35 percent clay. They have 0 to 5 percent gravel.

## ***Zumwalt Series***

The Zumwalt series consists of moderately deep, well drained soils on hills and plateaus. These soils formed in mixed loess and volcanic ash over residuum and colluvium derived from basalt. Slopes are 0 to 15 percent. Elevation is 3,400 to 5,600 feet. The mean annual precipitation is 13 to 35 inches, and the mean annual air temperature is 42 to 45 degrees F.

Typical pedon of Zumwalt silt loam in an area of Zumwalt-Harlow complex, 2 to 8 percent slopes, in an area of rangeland about 20 miles northeast of Enterprise; 1,020 feet east and 990 feet north of the southwest corner of sec. 29, T. 2 N., R. 47 E.

Ap—0 to 7 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak thin platy structure and moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; many fine and common medium roots; few very fine tubular pores and many very fine irregular pores; slightly acid (pH 6.2); abrupt smooth boundary.

E—7 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium platy structure and weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many fine and medium roots; many very fine tubular pores; slightly acid (pH 6.4); abrupt smooth boundary.

2Btss1—9 to 13 inches; dark brown (10YR 3/3) silty clay, dark yellowish brown (10YR 3/4) dry; moderate medium columnar structure parting to moderate fine and medium subangular blocky; very hard, firm, very sticky and very plastic; common fine roots; many very fine tubular pores; common slickensides; continuous distinct clay films on faces of peds; few fine black manganese concretions; neutral (pH 6.8); clear wavy boundary.

2Btss2—13 to 21 inches; dark brown (10YR 3/3) silty clay, dark yellowish brown (10YR 3/4) dry; moderate fine and medium subangular blocky structure; very hard, firm, very sticky and very plastic; common fine roots; many very fine tubular pores; common slickensides; continuous distinct clay films on faces of peds; few fine black manganese concretions; slightly alkaline (pH 7.5); clear wavy boundary.

2Btk—21 to 31 inches; dark brown (10YR 3/3) silty clay, brown (10YR 4/3) dry; moderate medium subangular blocky structure; very hard, firm, very sticky and very plastic; common fine roots; many very fine tubular pores; common distinct clay films on faces of peds; few pale brown soft masses of segregated calcium carbonate; moderately alkaline (pH 8.1); clear wavy boundary.

2BC—31 to 37 inches; dark brown (10YR 3/3) silty clay, dark yellowish brown (10YR 4/4) dry; weak fine subangular blocky structure; hard, firm, moderately sticky and

moderately plastic; few fine roots; many fine tubular pores; moderately alkaline (pH 8.1); abrupt wavy boundary.

3R—37 inches; basalt.

Depth to bedrock is 20 to 40 inches. The mollic epipedon is 10 to 20 inches thick, and it includes the upper part of the 2Btss horizon. Depth to the clayey argillic horizon is 6 to 15 inches. Calcium carbonate is below a depth of 20 inches or is absent. The organic matter content decreases regularly to less than 1 percent below a depth of 20 inches.

The A horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2 moist or dry. It is silt loam with 15 to 20 percent clay. It has 0 to 5 percent gravel. It is slightly acid or neutral.

The E horizon, where present, has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam with 15 to 20 percent clay. It has 0 to 5 percent gravel. It is slightly acid or neutral.

The 2Btss horizon has hue of 10YR or 7.5YR, value of 3 or 4 moist and 3 to 5 dry, and chroma of 3 or 4 moist or dry. It is clay or silty clay with 50 to 60 percent clay. In some pedons, the upper part of the horizon has a stone line that ranges to 10 percent gravel. The horizon has few or common slickensides. It is neutral or slightly alkaline.

The 2Btk and 2BC horizons have color and texture similar to those of the 2Btss horizon. The 2Btk and 2BC horizons have 0 to 2 percent calcium carbonate equivalent. They are slightly alkaline or moderately alkaline.

# Formation of the Soils

## Geology

By Stanley Winther, soil scientist, Natural Resources Conservation Service.

At one time in geologic history, the Pacific Ocean extended onto the North American continent roughly through eastern Washington and into Idaho. The geologic history of how the survey area, as well as the rest of Oregon and western Washington, became part of the North American landmass involves tropical islands, plate tectonics, collision and fracturing of landmasses, massive lava flows, and scouring glaciers.

During the Permian (about 250 million years ago), a volcanic archipelago rose out of the Pacific Ocean (Orr, 1996). For 100 million years thereafter, this island arc occasionally spewed lava into the surrounding tropical waters. The flows with the greatest volume were deposited in the nearby lowlands and became known as the Seven Devils Group. This rock underlies much of the survey area (fig. 28).

At the same time, the Clover Creek Greenstone Formation was developing (Brooks, 1976). This formation is a mixture of submarine lava flows, breccia, and tuff interbedded with sedimentary rock. Low-grade metamorphism converted the minerals in the volcanic rock into green chlorite and epidote. This rock has a dull green appearance and is therefore known as "greenstone." It is on the northeastern footslopes of the Wallowa Mountains.

During the late Triassic and early Jurassic (about 220 to 190 million years ago), the island arc was submerged and was in a shallow-water, shelflike position. This warm-water environment strongly encouraged the formation of coral reefs. The shells of corals and mollusks eventually became limestone that is known as the Martin Bridge Formation. Later, erosion deposited mud onto the ocean shelf, burying the

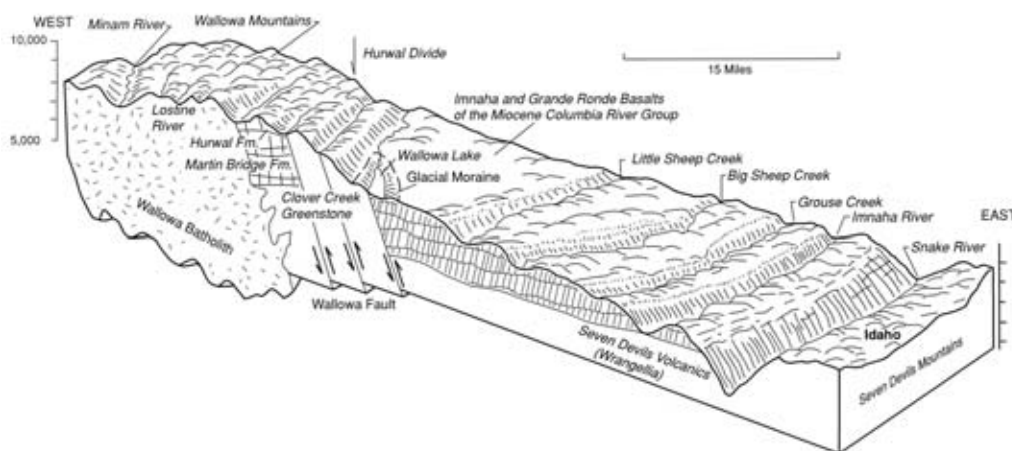


Figure 28.—Structure and stratigraphy of the eastern flank of the Wallowa Mountains, from the Minam River to the Snake River.

coral. Over time it hardened into shale and siltstone known as the Hurwal Formation. This formation overlies the Martin Bridge Formation. Both formations are exposed on the upper northern slopes of the Wallowa Mountains. The Hurwal Formation is also in Lostine Canyon.

Also during this time, the submerged island arc was moving very slowly tectonically eastward toward the western shoreline of North America. Collectively, the Seven Devils Group, the Clovercreek Greenstone, and the Martin Bridge and Hurwal Formations are known as the Wallowa terrane. The collision and bonding of the terrane to the continent is a process called "accretion." Because of the intense pressure of accretion, the terrane has been sheared by faults and the upper layer has been compressed, causing the ground to be rumpled or folded. In some areas the deformation has altered the original rock beyond recognition.

A larger fragmented terrane called the Wrangellia terrane consists of lava, volcanic ash, and sedimentary rock similar to those of the Wallowa terrane (Walker, 1990). The Wrangellia terrane extends from the Wrangell Mountains of Alaska and includes the Queen Charlotte and Vancouver Islands of Canada. It has been theorized by some geologists that northeastern Oregon is the true southern tip of this terrane.

Uplift of the Wallowa terrane during the mid-Jurassic set in motion the processes of erosion and subsequent deposition of mud and gravel over the older Hurwal Formation. The mud and gravel probably settled out in deltas at the mouth of streams and in alluvial fans at the base of hills. Time and pressure changed the mud and gravel to conglomerate and sandstone, forming the Coon Hollow Formation. This formation features fossilized ferns and quillworts commonly found in riparian areas. Growth rings of petrified trees indicate an overall temperate climate with high precipitation and a short, dry season. Mollusks and corals along with plant fossils suggest that a shallow, coastal environment existed at that time. The Coon Hollow Formation is exposed in the far northeastern corner of Wallowa County, along the Snake River.

During the late Jurassic and early Cretaceous (about 160 to 120 million years ago), magma from deep within the earth forced its way up into the Martin Bridge, Hurwal, and Coon Hollow Formations. The heat and pressure converted the surrounding limestone and shale into marble and slate. The magma did not reach the surface, but it continued to enlarge by forcing the other rock up or aside. The magma slowly cooled, forming large-grained crystals. This large, intrusive body is known as a batholith. By definition, a batholith has an exposed surface area of 40 square miles or more. The Bald Mountain batholith in the Elkhorn Mountains is 144 square miles in size, and the Wallowa Mountain batholith covers 324 square miles. These batholiths are composed of granodiorite.

During the early Cenozoic or the Paleocene, northeastern Oregon was experiencing uplift and erosion. Erosion is assumed to be the controlling factor during this time, because the Blue Mountains do not have any identifiable rock that can be correlated to this period. The Cascade Mountains and Coast Range were not formed yet, and the ocean beaches were just east of where the Cascade Mountains are today.

During the Miocene (25 to 5 million years ago), very fluid, basaltic flows known as the Columbia River Basalt Group poured from cracks and vents in northeastern Oregon and from vents in southeastern Washington and western Idaho. Lava quickly filled the valleys of the Blue Mountains. More than forty flows have been documented, and as much as 400 cubic miles of lava extruded from a single eruption. These lava flows eventually covered about one-quarter of Oregon, particularly the northeastern and north-central portions. Between flows, sediment was deposited in temporary lakes and then streams eroded this material into the valleys.

In this survey area, the Columbia River Basalt Group includes the older Imnaha Basalt and the younger Grande Ronde Basalt. The Imnaha Basalt consists of dull



brown, somewhat porous basalt with large crystals (phenocrysts) of plagioclase, olivine, or augite. It is exposed in the lower Imnaha Valley as tilted layers of highly weathered rock. Above the Imnaha Basalt are the horizontal lava flows of the Grande Ronde Basalt. This basalt is very dark gray, hard, and dense (fig. 29).

Today, the basalt flows serve as cap rock that protects the less resistant underlying rock and soil material from erosion. Lava flows at the top of Ruby Peak protect the softer Clover Creek, Hurwal, and Martin Bridge Formations from erosion.

By the late middle Miocene, the Cascade Mountains had formed and the ocean had retreated to its present location. During this time, the climate had cooled and become more temperate. Streams were actively eroding the older sediment.

During the Pleistocene (lasting 1.5 million years), the climate turned bitterly cold and continental glaciation advanced into the northern part of the United States. In Oregon, glaciers were restricted to mountainous stream-cut valleys. Nine distinct glaciers influenced the Wallowa Mountains. Of these, the Imnaha, McCully, Wallowa, Lostine, Bear, and Minam Glaciers are best known. The ice has long since receded, but U-shaped valleys, cirques, and moraines remain, radiating out from the peaks of the Wallowa Mountains. The Wallowa Lake moraine is a textbook example of lateral and terminal moraines. In contrast, the Lostine moraine in the Lostine Valley is a collection of small terminal moraines. These moraines formed as a result of deposition of rock debris at the margins of the glaciers.

Glaciers moving over the bedrock produced fine-grained material known as silt. The silt washed out into stream valleys downslope from moraines. It has since been moved by wind from stream valleys and deposited in the surrounding hills. This loess buried once exposed bedrock and very shallow soils. As a result, the soil depth was significantly increased and the grasslands flourished. Over time these loess soils have developed an argillic horizon.

Approximately 7,700 years ago, Mt. Mazama, in the Cascade Mountains of



**Figure 29.—Tilted layers of highly weathered Imnaha Basalt in foreground, and Imnaha Basalt overlain by multiple horizontal layers of hard Grande Ronde Basalt in background.**

southern Oregon, erupted with such force that 2,500 feet of rock was blown off of the mountaintop (Bacon and others, 1997). The wind carried volcanic ash from the crater to the survey area and beyond. The ash was deposited over existing soils underlain by fractured Miocene basalt. Because of the increased available water capacity of the volcanic ash, forests have thrived in diversity and the quantity of timber produced. Since the volcanic ash is relatively young, soil development has only progressed to the cambic horizon stage.

## Factors of Soil Formation

By Stanley Winther, soil scientist, Natural Resources Conservation Service.

Soils are the result of five major soil-forming factors—parent material, climate, topography, living organisms, and time. Depending on location, each of these factors has a greater or lesser effect on soil development. The interaction of these factors determines the speed of chemical and physical decomposition of the original rock. Many of the soils in the survey area also occur in adjacent survey areas, such as those of the soil surveys of Baker County Area (USDA, 1997), Idaho County Area (USDA, 1982), Union County Area (USDA, 1985), and Asotin County Area (USDA, 1991).

### Parent material

In the survey area, basalt in the form of horizontal lava flows is the dominant type of bedrock from which many soils have formed. Basalt is somewhat resistant to chemical decomposition, so physical decay contributes most to soil development. Basalt is prone to fracturing because vertical columns formed as the lava cooled (Hunt, 1972). The natural fractures between the columns allow water to penetrate the rock. Repeated freezing and thawing slowly expand the cracks until the basalt breaks apart. Thus fractured basalt commonly is covered with a layer of loose cobbles and gravel. Once the surface of the soil is exposed, the mineral components such as plagioclase feldspar, olivine, and augite are subject to chemical weathering (Pirsson and Knopf, 1966). The soils in the survey area that are derived from basalt include those of the Anatone, Bocker, Powwatka, Cherrycreek, Imnaha, Harlow, Klicker, Snell, Limberjim, and Syrupcreek series.

The dark-colored minerals derived from basalt along with the deposition of loess and organic matter from decaying plants have combined to form a mollic epipedon. A significant number of the soils in the area are Mollisols.

Granodiorite is a primary component of the Wallowa Mountains. It is composed of quartz and feldspar with minor amounts of biotite and hornblende (Orr and Baldwin, 1992). The relatively rapid weathering of biotite initiates the decomposition of the granitic rock and the release of individual particles of quartz and feldspar (Birkeland, 1974). Because quartz and feldspar are relatively resistant to decomposition, they remain intact as sand-sized particles. Streams easily distribute these particles. Soils on flood plains that have an abundance of these sand-sized particles include those of the Bittercreek, Josset, Eggleston, Veazie, and Voats series. In contrast, loamy material that is dominantly unweathered granitic rock has been transported out of the mountains to outwash fans and moraines. Soils in these areas include those of the Rondowa, Ferguson, and Bucketlake series.

Another kind of bedrock in the survey area is along the upper slopes of Lostine Canyon. This bedrock is a compilation of shale (argillite) and sandstone with minor amounts of limestone and conglomerate that was metamorphosed to form slate, hornfels, schist, and crystalline limestone (Wagner, 1955). Soils associated with this parent material include those of the Slicklog, Eastpine, Analulu, Bordengulch, and Vandamine series.



After millions of years of rock weathering, volcanic ash from Mt. Mazama settled over the survey area, significantly impacting soil development (Eyre, 1980).

### **Climate**

Climate has a significant impact in the rate of decomposition of parent material. Temperature and precipitation affect soil formation. In the tropics, warm temperatures and plentiful rainfall accelerate chemical weathering of the parent material and completely leach minerals from the soil profile. In contrast, the Cascade Mountains protect the survey area from the high rainfall of western Oregon. Furthermore, the area is at a relatively moderate elevation which means that most of the soils have a frigid temperature regime. Thus, the decomposition of rock is relatively slow because of the low precipitation and low temperatures.

In general, precipitation in the survey area ranges from 13 to 35 inches. The 13- to 17-inch precipitation zone is representative of the Wallowa Valley and the Leap, Imnaha, Zumwalt, and Troy areas. The native vegetation in these areas is Idaho fescue and bluebunch wheatgrass. The 17- to 24-inch precipitation zone includes the Flora, Promise, Akers Butte, and Little Sheep Creek areas. Ponderosa pine, Douglas fir, snowberry, ninebark, larch, and pinegrass are native in these areas. The soils in these zones have a xeric moisture regime.

The north-facing slopes of the Wallowa Mountains as well as the Harl Butte, Sled Springs, and Deep Creek areas have only slightly higher rainfall than the xeric areas. These areas have a udic soil moisture regime because of the volcanic ash mantle. Volcanic ash stores more water; thus, there is more water available to trees during the critical dry period in summer. The native vegetation in these areas is grand fir, prince's pine, twinflower, and queen's cup beadlily.

The soil temperature regimes in the survey area are mesic, frigid, and cryic. The mesic temperature regime is confined to the lower Wallowa Valley and the Troy and Imnaha areas. These areas have more than 100 frost-free days per year. The frigid soils are much more extensive. They encompass the Little Sheep Creek area, the upper Wallowa Valley, and the Promise, Leap, Zumwalt, and Deep Creek areas. The frost-free period dominantly ranges from 70 to 100 days. The exception is areas of the Akerite soil, which are in small depressions known as "frost pockets." These soils have a slightly shorter frost-free period than do the other frigid soils, and they support dominantly lodgepole pine. The cryic soil temperature regime is restricted to north-facing slopes of the Wallowa Mountains. The frost-free period is less than 70 days.

Even though the present climate is cool and dry, the formation of an argillic horizon was encouraged by the slightly colder and wetter climates of the past. Glacial meltdown also provided more water for soil development than does the present climate.

### **Topography**

As a result of faulting and uplift, the landscape of the survey is dominantly a slightly sloping basalt plateau. Stream downcutting of the plateau has formed narrow valleys with very steep canyon walls. Towering above the plateau and the Wallowa Valley are the snow-capped Wallowa Mountains.

Elevation and aspect affect soil temperature. In the survey area, the soils below an elevation of 3,400 feet have a mesic temperature regime and those above that elevation in nearly level or gently sloping areas have a frigid temperature regime. On steeper, south-facing slopes, the mesic temperature regime extends to an elevation of 4,000 feet because of the warming effects of the sun. On north-facing slopes, the frigid temperature regime may be at an elevation of 2,800 feet.

Generally, in nearly level or gently sloping areas, the cryic soil temperature regime begins at an elevation of 5,800 feet. On south-facing slopes, the frigid temperature

regime may extend to an elevation of 6,200 feet. On north-facing slopes, the cryic regime may begin at an elevation of 5,400 feet.

South-facing slopes generally warm up earlier than do north-facing slopes, and vegetation on south-facing slopes begins to grow earlier in spring. Furthermore, south-facing slopes are affected by soil moisture stress earlier than are north-facing slopes.

Aspect also has an influence on soil depth. North-facing slopes have more shade for grasses and trees, thus allowing growth of many roots that help to reduce the risk of erosion. When volcanic ash or loess was deposited, the vegetation sheltered these particles from further movement. As a result, the soil profile became deeper.

South-facing slopes typically have a harsher environment, thus they support less vegetation and have a higher risk of soil erosion. The soils are generally shallower than those on north-facing slopes, and they may have a higher content of rock fragments throughout the profile, which reduces the available water capacity.

Another important factor of topography is the movement of clay from the stable plateaus to the backslopes of canyons. The Lookingglass and Cowsly soils are good examples of soils that formed on stable plateaus and have a well developed argillic horizon. When eroded by stream undercutting, the clay from these soils mixes with the loose basalt on the shoulders of backslopes. This colluvial mixture is clayey-skeletal and is representative of soils of the Harlow, Snell, Gwinly, and Mallory series. Further downslope, the concentration of clay is diminished as the mixing and colluvial processes increase, but the soils still have an argillic horizon. These soils are loamy-skeletal and are representative of the Gwin, Kettenbach, Imnaha, and Dixiejett series. Deep, loamy-skeletal soils that have a cambic horizon, such as those of the Cherrycreek series, are on the footslopes.

### **Living Organisms**

Living organisms include plants, animals, and man. Plants are especially influential. For example, in areas of rangeland the decay of grass roots supplies organic matter to the surface layer, staining the surface soil a darker color and resulting in the formation of Mollisols. Organic matter increases the available water capacity, infiltration rate, fertility, and tilth of the soil.

The plant communities in the survey area are unique in that there are few areas of sagebrush. Bunchgrasses such as Idaho fescue are on frigid north-facing slopes, and bluebunch wheatgrass is on south-facing slopes. Fire has little effect on these bunchgrasses (Franklin and Dyrness, 1973; Johnson and Clausniter, 1992).

In forested areas, leaves, needles, and twigs are decomposed by fungi and bacteria. Larger dead branches and trees are attacked by termites and other insects. Waste products eventually are incorporated into the soils and contribute to their overall fertility.

Animals burrow into the soil, bringing subsoil material to the surface. The burrows also allow for rapid water infiltration into the subsoil. Common burrowing animals in the survey area include ground squirrels and badgers. These animals inhabit rock-free, silty soils, such as those of the Hurwal series on backslopes and the Albee series on mounds in areas of patterned ground.

Man also has an impact on the formation of soils. Historically, Indians routinely burned dry grass to stimulate new growth in areas of rangeland. Forests were also burned to reduce the amount of unwanted undergrowth and allow for easy passage. Trees with thick bark, such as ponderosa pine, usually were unaffected by the low heat. The result was an almost parklike setting with huge trees and sunlit openings. Contemporary times have resulted in changes in forest fire management. Swift response to forest fires allows for the accumulation of large quantities of dead branches and dry shrubs at the base of the trees, which fuels later catastrophic fires.

The high heat intensity of these fires consumes organic matter in the soil, and the dead roots are unable to hold the soil in place.

In more recent times, areas around the town of Flora and on Alder Slope were cleared of trees and planted to nonirrigated crops such as wheat. The patchwork of wet meadows and dry, gravelly terraces once common in the Wallowa Valley has been converted to irrigated pastures, and the wetlands are grazed or left for use by waterfowl. In addition, many of the less sloping areas of the grassy Leap Hills have been converted to nonirrigated crops.

Erosion is a significant factor in areas where all of the vegetation has been removed from the soil surface. This includes areas cultivated for planting, areas of forestland following complete harvesting, areas of forestland used for roadbuilding, and homesites that are cleared for construction.

### **Time**

Soil development is the result of climate, topography, and living organisms acting on parent material over a period of time.

The flood plains in the survey area are considered to be very young because of reoccurring flooding and the natural meandering of streams that erodes soil material and then redeposits sand and gravel. These "cuts and fills" occur with such frequency that soil development is minimal. Soils on young flood plains include those of the Balm, Veazie, Voats, Hershall, and Cheval series.

On the adjacent stream terraces above the flood plains, the soils have had enough time to undergo change in the subsoil and develop a cambic horizon. As a result of stream downcutting, these first stream terraces became abandoned flood plains that are subject to rare flooding, if any. Soils on these terraces include those of the Redmount and Langrell series.

On stable landscapes, such as plateaus and structural benches, the soils have been relatively undisturbed for thousands of years. The clay from the surface layer has eluviated into the subsoil and recognizable clay films have developed. The soils have developed an argillic horizon. Examples of soils that have faint clay films include those of the Hurwal and Powwatka series, and examples of those that have distinct clay films include those of the Phys, Ramo, and Imnaha series. Soils of the Tippet, Lookingglass, and Conley series have prominent clay films.

A significant number of soils in the area have been influenced by the deposition of volcanic ash during the eruption of Mt. Mazama. Accurate radiocarbon dating of the eruption shows that the buried or relict soils are older and more developed than the volcanic ash deposited above it. Examples are soils of the Ferguson and Threebuck series. These soils have a subsoil of glacial till and clayey colluvium, respectively, and they developed during a different time and are older than the volcanic ash mantle deposited approximately 7,000 years ago.

## **Geomorphic Surfaces and Soil Development**

By Stanley Winther, soil scientist, Natural Resources Conservation Service.

### **Flood Plains**

The major flood plain in the survey area is along the Wallowa River with other tributary flood plains along Hurricane, Bear, Prairie, Chesnimnus, and Joseph Creeks and the Lostine and Imnaha Rivers. The source material is the decomposition of coarse grained granite from the core of the Wallowa Mountains. Granite is a light-colored rock composed of feldspar, quartz, and biotite minerals (Pirsson and Knopf, 1966). Of the three, biotite weathers first and the more weather-resistant feldspar and quartz form sand-sized particles (Birkeland, 1974).

Also in the Wallowa Mountains are dark-colored rocks, such as gabbro and basalt, that contribute minerals such as pyroxene, hornblende, and olivine to streams. Rounded gravel forms when rock is subjected to strong stream currents that force the rock fragments to roll along the stream bottom. The sharp corners are worn off through abrasion from other gravel and sand.

High-velocity streams transport coarse sand and gravel downstream. When the velocity of the streams finally decreases, the coarse sediment is deposited as gravel bars in the channel. Soils that have a high content of sand and gravel throughout the profile include those of the Matterhorn, Voats, and Eggleston series (sandy-skeletal family). As stream channels migrate across the valley floor, they deposit fine sand and silt over the older gravel bars. Examples of soils that formed in this material include those of the Josset, Veazie, Balm, Cheval, and Hershal series (coarse-loamy or coarse-silty over sandy or sandy-skeletal family). Catherine soils (fine-silty family) are similar to these soils, but the rock fragments are at a much greater depth. In certain areas of the flood plains, the sand and gravel has been eroded away by meandering streams and completely replaced by silt. Soils of the Sturgill series (fine-silty family) formed in these areas.

### **First Stream Terraces**

These terraces are at a slightly higher elevation and are adjacent to the flood plains. At one time these terraces made up the flood plains, but the downcutting of the streambed and the meandering of the streams eroded the base of the terraces, forming a small escarpment or rise. This geomorphic surface is subject to rare flooding or is not subject to flooding. Because glacial meltwaters have contributed rock to the streams, these terraces are considered to have a glaciofluvial origin. Diamond Prairie, west of the town of Wallowa, and the nearly level area between the towns of Wallowa and Lostine are examples of first stream terraces. Soils of the Langrell series (loamy-skeletal family) are in both of these areas.

Northwest of the town of Wallowa, loess has eroded from the surrounding hills and has been deposited onto first stream terraces. Soils of the Snow series (fine-silty family) are in this area. These soils formed in loess over alluvium.

### **Second Stream Terraces**

These terraces are above the first stream terraces. They are the oldest terraces that formed as a result of alluvial deposition. In most of the stream valleys in the survey area, these terraces are very narrow, have been covered by outwash material to form alluvial fans, or have been removed by glaciofluvial flooding. A second stream terrace is just north of the town of Enterprise. Soils of the Tuckerdowns series (loamy-skeletal family) are on this terrace. These soils have water-rounded, basalt gravel and cobbles throughout. Over time the rock has undergone slight weathering and a calcic horizon has formed.

### **Alluvial Fans**

Alluvial fans form in areas where streams have eroded material from the uplands and deposited it onto relatively flat lowlands. The abrupt change in the stream channel gradient, from strongly sloping to nearly level, results in rapid deposition of coarse textured sediment. This causes frequent changes in the location of the stream channel, forming a fan-shaped landform with its apex pointing to the uplands.

An example of soils on large alluvial fans is those of the Minam series (fine-loamy family). These soils are at the base of the Wallowa Mountains, along upper Prairie Creek, on Alder Slope, and at the mouth of Lostine Canyon. The stream gradient rapidly decreases at the mouth of the canyon, resulting in soils that have a stony and cobbly surface. Downslope from the mouth of the canyon, gravel is deposited by the streams. At the foot of the alluvial fans, few surface rocks are present.

An example of soils on small alluvial fans is those of the Phys series (loamy-skeletal family). These soils are common in the Imnaha Valley, where occasional summer rainstorms and rapid snowmelt move rock and soil material from the narrow canyons into wider valleys. Soils of the Doublecreek series (coarse-loamy family) are also in these areas.

Southeast of the town of Wallowa, clay and rock have been eroded from the adjacent hills and deposited on first stream terraces, forming fans. Soils of the Ramo series (fine family) formed in areas where both clay and rock have been deposited. Soils of the Gelsinger series (fine family) formed in areas of clay with a calcium carbonate accumulation. Soils of the Conley series (fine family) formed in areas where clayey material has accumulated in broad depressions.

### **Basalt Plateaus**

During the Miocene, basalt lava flowed from vents or cracks. Findley Buttes on Zumwalt Prairie is an example (fig. 30). The first lava flow was highly fluid, covering the landscape relatively quickly and completely filling valleys. This lava flow was followed by several thousand years with no volcanic activity. Soil-forming processes were active during this period. The soils that formed commonly have a loamy texture. The next lava flows frequently baked the surface soil, forming a thin, red layer. This sequence, a layer of lava over a layer of soil, somewhat like a layered cake, continued until it was 1,000 feet thick or more. Examples of this sequence are in Hells, Imnaha, Joseph, and Wallowa Canyons.

After the lava flows finally ceased, the uppermost layer of rock was subjected to millions of years of physical weathering. As time progressed, volcanic ash covered the landscape and filled voids in the loose rock. Weathering and decomposition of the silica-rich ash resulted in the formation of 2:1 lattice clay known as smectite. Glacial loess and volcanic ash from Mt. Mazama then covered the layers of clay and rock.



**Figure 30.—Findley Buttes on Zumwalt Prairie. These buttes consist of basalt lava that flowed from vents millions of years ago.**



Soils of the Zumwalt and Tippet series (fine family) and the Harlow, Snell, Gwinly, Mallory, Laufer, and Thiessen series (clay-skeletal family) formed in this material. Low rainfall and shallow depth to clay or bedrock limit the present vegetation to grassland on most of these soils.

In some areas of basalt plateaus, the clay was completely eroded away and only a thin layer of loess with an influence of volcanic ash covered the bedrock. Over time patterned ground, or mima mounds, formed as a result of frost heaving, disturbance by animals, and some erosion. Earthquakes may also have caused the formation of patterned ground (Orr, 1996).

Patterned ground, also known as “biscuit scabland,” has mounds that are 2 to 3 feet high with stony and cobbly areas between them (fig. 31). In the grassland areas, soils of the Wallowa and Watama series (fine-loamy family) are on mounds and those of the Rockly and Bocker series (loamy-skeletal family) are in intermounds. In areas with higher rainfall, soils of the Albee series (fine-loamy family) are on nonforested mounds. Soils of the Buford series (Ultic subgroup), which are deep to bedrock, are on mounds that are covered with ponderosa pine. Soils of the Bunchpoint series (Vitrandic subgroup), which have an influence of volcanic ash, are on forested mounds at higher elevations.

### **Dissected Basalt Plateaus and Canyons**

The lava plateaus in the survey area have been deeply dissected by rivers and streams. Many of the soils on these plateaus have formed in loamy material. Moving water easily cuts through these soils to the horizontal lava flows, at which the rate of downcutting immediately slows down. Nonetheless, the water flows into the vertical fractures that formed millions of years ago as the basalt cooled. The power of the moving water eventually widens the cracks until rock is dislodged. Once the rock layer has been breached, the water rapidly downcuts the soil material again.

As the streams continued to downcut, the clay that formed on stable plateau summits began to erode onto canyon slopes and mix with loose basalt. In most areas only a small percentage of the original colluvial clay reached the bottom of the slope.

Along the Snake River, the Imnaha River, and Joseph Creek, the original, broad



**Figure 31.—Areas of mounds and intermounds on Zumwalt Prairie. A recent fire has blackened the grasses in the background.**

plateau of basalt has been reduced to narrow ridges by the deepening and broadening of the stream valleys. Only isolated pockets of the original clay remain. Soils of the Cherrycreek, Imnaha, Anatone, Gwin, and Kettenbach series (loamy-skeletal family) formed in loamy interbedded soil material mixed with fractured basalt.

### **Glaciation**

During the Pleistocene, North America became colder and continental glaciers covered Canada and the northern part of the United States. In Oregon, glaciers were confined to the higher elevations. The Wallowa Mountains were gouged out by alpine glaciers, leaving U-shaped valleys, cirques, basins, and aretes.

The advance of glaciers carried ice-rafted rock of various sizes as well as soil material from the mountains and hills. Lateral moraines formed as the glaciers advanced, and terminal moraines accumulated as the glacier halted. Soils of the Rondowa series (loamy-skeletal family) are on glacial moraines. These soils consist of loamy soil material intermixed with rounded granitic rock ranging in size from gravel to boulders.

### **Glacial Outwash**

As the glaciers melted and retreated, ice meltwater moved tons of sand, silt, and gravel into the lowlands. The silt was formed as a result of abrasion as glaciers moved over the granodiorite in the Wallowa Mountains. The deposits formed outwash plains extending from the base of the glaciers. Several cycles of glacial advances and retreats and the subsequent deposition of glacial outwash occurred during the Pleistocene. In some areas meltwater reworked all of the sediment, but in other areas islands of older outwash material were left untouched.

The most prominent glacial outwash plain in the survey area is just north of the Wallowa Lake moraine. Soils of the Silverlake series (fine family) formed in this area. Outwash streams eroded large portions of this landform, and sand and gravel were deposited in the eroded areas. Loamy material originating from glacial meltwater then settled over the sand and gravel. Soils of the Redmount series (coarse-loamy family) formed in this material. Soils of the Lostine series formed in deep deposits of silty material. Soils of the Reavis and Chesnimnus series formed in thick deposits of silt with associated accumulations of calcium carbonate. The valley fill from outwash was so immense that only the peaks of the basalt hills are still visible in the Wallowa Valley near the town of Joseph.

### **Loess**

Loess is windblown silt that frequently is unconsolidated and nonstratified. A significant amount of silty material from glacial meltwaters was deposited on the outwash plains adjacent to the Wallowa Lake glacier and other glaciers along the north-facing slopes of the Wallowa Mountains. This silt was deposited by wind into the surrounding hills.

A second possible source of loess is the Palouse area of southeastern Washington (Maley, 1987). This loess originated from the continental glaciation of northern Idaho and northern Washington. The prevailing winds at that time could have moved the loess south into the survey area.

A third source of loess, the smallest, is silt deposited along the Snake River after Lake Bonneville in Utah was lowered about 14,500 years ago (Maley, 1987). The Bonneville Flood backed water up into the Grande Ronde and Imnaha Rivers, resulting in silty terrace deposits. Soils of the Chard series (coarse-loamy family) formed in these deep silty deposits.

On the low hills immediately north of the Wallowa Valley (Leap area), loess has covered the exposed basalt. The moderately deep Powwatka series (fine-silty family) and some shallow Parsnip soils (loamy family) are on the summits and strongly



sloping backslopes around these hills. The very deep Hurwal soils (fine-silty family) formed on footslopes, in drainageways, and on north-facing backslopes.

Soils of the Klicker and Fivebit series (loamy-skeletal family) formed on forested plateaus in loess deposited on the fractured basalt. Where basalt has been dislodged, tumbled downslope, and mixed with loess, moderately deep Klicker soils have formed on south-facing slopes and deep Getaway soils (loamy-skeletal family) have formed on north-facing slopes. Nonforested soils in these areas include the shallow Anatone soils (loamy-skeletal family) and Harlow soils (clayey-skeletal family).

### **Soils Influenced by Calcium Carbonate**

In the Imnaha Valley at an elevation of less than 2,800 feet, the soils have an accumulation of calcium carbonate. This accumulation is the result of decomposition of calcium-rich rock such as limestone. Over time rainfall dissolved the calcium carbonate and leached it downward into the soil where it precipitated out and appears as a white layer in the subsoil.

Soils that have a calcium carbonate accumulation include those of the Schrier and Almota series (fine-loamy family) on north-facing slopes and the Tannahill and Schuelke series (loamy-skeletal family) on south-facing slopes. The Schuelke soils are also on gently sloping structural benches above the Imnaha River.

### **Soils Influenced by Volcanic Ash**

About 7,700 years ago Mt. Mazama, in southwestern Oregon, erupted dramatically. The outpouring of lava and hot gases left a large chamber in the mountain. The mountain collapsed inward, forming Crater Lake (Orr and Baldwin, 1992). Hot pumice rolled down the flanks of the mountain, and rock fragments from Mt. Mazama were deposited as far as the Bend area 70 miles away. Incandescent clouds of volcanic ash were ejected and moved by the prevailing winds. The larger volcanic ash particles settled near the volcano. By the time the volcanic ash clouds reached the survey area, only the lightest particles of silt and very fine sand-sized particles were left. The volcanic ash has a higher available water capacity than do similarly textured soils.

About 1 to 3 feet of volcanic ash covered the soils in the survey area. The volcanic ash remained in areas that supported vegetation. The soils thus were deeper and better able to support a wider range of plant life. More than one-half of the soils in the area are classified as Andisols or are in the Vitrandic subgroup.

On stable basalt-controlled plateaus, the volcanic ash was laid down during multiple events as uniform layers over clayey soils. Soils of the Cowsly, Lookingglass, and Wilkins series (fine family) have a thick mantle of volcanic ash over buried clayey material. In drainageways, the volcanic ash was eroded away. The moderately deep Howmeadows soils (fine family) formed in drainageways. Soils of the Sherod series (loamy-skeletal family) formed in drainageways where the material was eroded down to the bedrock and then the drainageways were refilled with mixed loess, volcanic ash, and rock.

In areas of soils on slopes that supported only sparse vegetation because of fires, steep slopes, or dry south-facing slopes, the volcanic ash was quickly washed downslope into streams. It collected as white pockets at the mouth of stream valleys or as colluvial deposits on benches. The Collegecreek series (ashy over loamy family) is an example of soils on fans of these narrow stream valleys. The small amount of volcanic ash that remained on the slopes eventually mixed with loess and basalt colluvium to form soils such as those of the Klicker series (Ultic subgroup) and the Klickson and Larabee series (Vitrandic subgroup).

On backslopes of canyons, plateaus, and mountains where the volcanic ash mantle remained, soils such as those of the Limberjim series (ashy over loamy-

skeletal family), Syrupcreek and Olot series (ashy over loamy-skeletal family), and Threebuck series (ashy over clayey-skeletal family) developed. In areas where the volcanic ash influence was lower and the ash was mixed with loess, soils such as those of the Sopher series (Vitrandic subgroup) and Tamarackcanyon series (Vitrandic subgroup) developed.



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# Glossary

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**ABC soil.** A soil having an A, a B, and a C horizon.

**Ablation till.** Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

**AC soil.** A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Alluvial cone.** The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Andic soil properties.** A collection of physical and chemical properties given in "Keys to Soil Taxonomy" that is the taxonomic criteria for the Andisol order.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Archipelago.** A landform that consists of a chain or cluster of islands. It commonly is in the open sea, but it may have a large landmass beside it. It commonly is volcanic, forming along mid-ocean ridges and hotspots, but many other processes are involved in its formation, including erosion and deposition.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Ash (volcanic).** Unconsolidated, pyroclastic material that is less than 2 millimeters in all dimensions.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at

wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low .....	0 to 3
Low .....	3 to 6
Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

**Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

**Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

**Basal till.** Compact glacial till deposited beneath the ice.

**Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

**Base slope.** A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

**Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

**Bedding system.** A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

**Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

**Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

**Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

**Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

**Bottom land.** The normal flood plain of a stream, subject to flooding.

**Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.

**Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

**Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

**Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

**Buried soil.** Soil covered by a mantle of alluvium, loess, or other more recent material, typically to a depth of more than 50 centimeters. Recent surface deposits less than 50 centimeters thick generally are considered part of the ground soil.

**Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

- Cable yarding.** A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.
- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Calcic horizon.** An illuvial horizon in which secondary calcium carbonate or other carbonates have accumulated.
- Calcium carbonate equivalent.** The amount of calcium carbonate in a soil measured by treating the soil sample with hydrochloric acid (HCL). The evolved carbon dioxide (CO<sub>2</sub>) is measured, and the amount of carbonate is then calculated as calcium carbonate (CaCO<sub>3</sub>).
- California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.
- Canopy.** The leafy crown of trees or shrubs. (See Crown.)
- Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Catena.** A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Cement rock.** Shaly limestone used in the manufacture of cement.
- Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- Cirque.** A semicircular, concave, bowl-like area that has steep faces primarily resulting from glacial ice and snow abrasion.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

**Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**COLE (coefficient of linear extensibility).** See Linear extensibility.

**Colluvium.** Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Congeliturbate.** Soil material disturbed by frost action.

**Conglomerate.** A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

- Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- Crown.** The upper part of a tree or shrub, including the living branches and their foliage.
- Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
- Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.
- Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the “Soil Survey Manual.”
- Drainage, surface.** Runoff, or surface flow of water, from an area.
- Draw.** A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.
- Drumlin.** A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.



- Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.
- Durinodes.** Nodules that are weakly cemented to indurated with silica oxide ( $\text{SiO}_2$ ) and are 1 centimeter in diameter or more.
- Duripan.** A subsurface horizon that is cemented with silica to the extent that fragments do not slake upon prolonged soaking in water or hydrochloric acid (HCL).
- Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.
- Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.
- Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.
- Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.
- Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.
- Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.
- Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.  
*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.  
*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.
- Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.
- Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.
- Esker.** A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.
- Extrusive rock.** Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.
- Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.
- Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Fibric soil material (peat).** The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable

according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

**Fine textured soil.** Sandy clay, silty clay, or clay.

**Firebreak.** Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

**Flaggy soil material.** Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

**Flagstone.** A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

**Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

**Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.

**Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

**Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

**Forb.** Any herbaceous plant not a grass or a sedge.

**Forest cover.** All trees and other woody plants (underbrush) covering the ground in a forest.

**Forest type.** A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Gilgai.** Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

**Glacial drift.** Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

**Glacial outwash.** Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

**Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

**Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.



- Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.
- Green manure crop (agronomy).** A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.
- Ground water.** Water filling all the unblocked pores of the material below the water table.
- Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.
- Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.
- Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.
- Hard to reclaim (in tables).** Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.
- Head slope.** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.
- Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.
- High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.
- Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.
- Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state.

Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net

irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Interfluve.** An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Basin.*—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

*Border.*—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

*Controlled flooding.*—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Kame.** An irregular, short ridge or hill of stratified glacial drift.

**Krotovinas.** Irregular, tubular streaks within one layer of soil material that have been transported from another layer. They are a result of the filling of tunnels made by burrowing animals.

**$K_{sat}$ .** Saturated hydraulic conductivity. (See Permeability.)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across.

Large stones adversely affect the specified use of the soil.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

**Low strength.** The soil is not strong enough to support loads.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Moraine.** An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*,

*medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

**Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low .....	less than 0.5 percent
Low .....	0.5 to 1.0 percent
Moderately low .....	1.0 to 2.0 percent
Moderate .....	2.0 to 4.0 percent
High .....	4.0 to 8.0 percent
Very high .....	more than 8.0 percent

**Outwash plain.** A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

**Paleoterrace.** An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The movement of water through the soil.

**Permafrost.** Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable .....	less than 0.0015 inch
Very slow .....	0.0015 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches

**Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

**pH value.** A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

**Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

**Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

**Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

**Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.

**Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

**Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

**Plowpan.** A compacted layer formed in the soil directly below the plowed layer.

**Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

**Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

**Potential native plant community.** See Climax plant community.

**Potential rooting depth (effective rooting depth).** Depth to which roots could



penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

**Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

**Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.

**Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.

**Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relict.** Pertaining to surface landscape features, such as landforms and geomorphic



surfaces, that have never been buried and yet dominantly formed under past environments.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

**Root zone.** The part of the soil that can be penetrated by plant roots.

**Rubble land.** Areas that consist of cobbles, stones, and boulders, commonly at the base of mountains.

**Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

**Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

**Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

**Sandstone.** Sedimentary rock containing dominantly sand-sized particles.

**Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

**Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.

**Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

**Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

**Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

**Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

**Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

**Shale.** Sedimentary rock formed by the hardening of a clay deposit.

**Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

**Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

**Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

**Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

**Silica.** A combination of silicon and oxygen. The mineral form is called quartz.

**Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

**Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level .....	0 to 3 percent
Gently sloping .....	1 to 8 percent
Strongly sloping .....	4 to 16 percent
Steep .....	20 to 60 percent
Very steep .....	45 percent and higher

Classes for complex slopes are as follows:

Nearly level .....	0 to 3 percent
Undulating .....	1 to 8 percent
Rolling .....	4 to 16 percent
Hilly .....	10 to 30 percent
Steep .....	20 to 60 percent
Very steep .....	45 percent and higher

**Sloughed till.** Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of  $\text{Na}^+$  to  $\text{Ca}^{++} + \text{Mg}^{++}$ . The degrees of sodicity and their respective ratios are:

Slight .....	less than 13:1
Moderate .....	13-30:1
Strong .....	more than 30:1

**Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Any surface soil horizon (A, E, AB, or EB) below the surface layer.

**Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice

common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

**Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Talus.** Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terminal moraine.** A belt of thick glacial drift that generally marks the termination of important glacial advances.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace (geologic).** An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

**Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.

**Till plain.** An extensive area of nearly level to undulating soils underlain by glacial till.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope.** The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

**Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

**Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

**Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.

**Umbric epipedon.** A thick, dark-colored, humus-rich surface horizon that has low base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

**Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

**Variiegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

**Varve.** A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

**Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

**Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

**Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

**Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

**Windthrow.** The uprooting and tipping over of trees by the wind.



## Tables

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Table 1.--Temperature and Precipitation  
(Recorded in the period 1961-90 at Enterprise R S, OR2672)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	34.4	14.7	24.5	56	-18	5	0.97	0.55	1.34	3	10.0
February-----	41.5	20.5	31.0	59	-7	8	0.50	0.31	0.67	1	3.5
March-----	47.4	23.6	35.5	70	2	34	0.85	0.45	1.19	2	5.5
April-----	54.4	28.6	41.5	77	13	97	1.13	0.34	1.77	3	2.3
May-----	65.0	34.9	49.9	85	20	315	1.53	0.65	2.28	4	0.5
June-----	72.4	40.6	56.5	92	27	491	1.94	0.72	2.96	5	0.0
July-----	82.0	43.3	62.7	97	31	705	0.77	0.29	1.17	2	0.0
August-----	82.1	42.4	62.2	98	29	663	1.04	0.39	1.80	3	0.0
September---	72.5	35.5	54.0	93	21	422	1.00	0.50	1.52	2	0.0
October-----	60.8	28.4	44.6	82	10	178	1.01	0.41	1.52	3	0.7
November-----	45.0	22.6	33.8	66	1	27	0.98	0.48	1.41	3	5.4
December-----	35.6	17.2	26.4	57	-15	8	1.10	0.50	1.62	3	8.6
Yearly:											
Average---	57.8	29.4	43.6	---	---	---	---	---	---	---	---
Extreme---	105	-30	---	99	-22	---	---	---	---	---	---
Total-----	---	---	---	---	---	2,952	12.83	10.16	14.80	34	36.5

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued  
(Recorded in the period 1961-90 at Enterprise 20 NNE, OR2678)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	36.5	16.0	26.2	54	-20	2	1.84	1.05	2.54	6	10.7
February-----	43.2	20.4	31.8	61	-12	9	1.36	0.79	1.86	5	5.3
March-----	50.6	24.8	37.7	72	5	45	1.64	1.07	2.16	6	2.5
April-----	59.3	29.0	44.2	85	15	158	1.80	0.96	2.55	6	0.3
May-----	66.8	34.8	50.8	91	20	331	2.14	1.40	2.82	6	0.0
June-----	75.3	41.0	58.2	95	27	542	1.94	1.12	2.67	5	0.0
July-----	83.8	43.2	63.5	100	30	724	1.19	0.50	1.78	3	0.0
August-----	84.0	42.1	63.0	102	30	706	1.29	0.35	2.26	3	0.0
September---	74.1	35.2	54.7	96	20	438	1.37	0.47	2.34	4	0.0
October-----	62.2	28.2	45.2	86	11	189	1.12	0.49	1.85	3	0.0
November-----	45.9	24.0	35.0	67	-3	28	1.89	1.11	2.60	6	4.8
December-----	36.7	16.6	26.6	54	-15	3	1.81	0.91	2.60	6	8.7
Yearly:											
Average---	59.9	29.6	44.7	---	---	---	---	---	---	---	---
Extreme---	105	-33	---	102	-25	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,175	19.39	16.51	21.59	59	32.4

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued  
 (Recorded in the period 1961-90 at Minam 7 NE, OR5610)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	33.2	14.0	23.6	51	-25	1	3.63	1.81	5.21	10	22.2
February-----	40.0	18.8	29.4	56	-15	2	2.68	1.66	3.60	7	11.8
March-----	44.9	21.5	33.2	63	-4	9	2.40	1.54	3.18	7	10.4
April-----	52.9	26.4	39.7	76	11	67	1.73	0.93	2.43	5	3.1
May-----	62.4	31.8	47.1	84	18	223	2.02	1.30	2.68	6	0.5
June-----	70.4	37.9	54.1	89	24	418	1.88	1.16	2.52	5	0.0
July-----	80.7	39.2	60.0	96	26	615	0.83	0.24	1.31	2	0.0
August-----	81.7	39.0	60.4	99	23	626	1.20	0.33	2.09	3	0.0
September---	71.7	32.9	52.3	92	17	368	1.44	0.41	2.27	3	0.1
October-----	58.7	26.7	42.7	81	9	128	2.07	0.73	3.18	5	0.9
November-----	43.5	22.6	33.0	63	-5	16	3.03	1.94	4.02	8	9.1
December-----	34.2	16.4	25.3	50	-24	1	3.92	2.05	5.56	10	21.7
Yearly:											
Average---	56.2	27.3	41.7	---	---	---	---	---	---	---	---
Extreme---	106	-39	---	99	-30	---	---	---	---	---	---
Total-----	---	---	---	---	---	2,473	26.83	18.52	29.46	71	79.8

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued

(Recorded in the period 1961-90 at Wallowa, OR8997)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	34.5	18.3	26.4	57	-16	7	1.94	0.98	2.77	6	12.0
February-----	41.9	22.5	32.2	61	-7	14	1.34	0.72	1.89	4	6.0
March-----	50.4	26.4	38.4	70	6	54	1.40	0.88	1.87	4	4.0
April-----	59.2	30.9	45.0	82	16	171	1.25	0.60	1.81	4	0.8
May-----	67.3	36.7	52.0	90	22	374	1.69	1.11	2.22	5	0.1
June-----	76.0	42.8	59.4	95	29	581	1.41	0.84	1.92	4	0.0
July-----	84.5	45.1	64.8	99	32	769	0.85	0.30	1.37	2	0.0
August-----	84.1	44.2	64.2	101	31	748	0.90	0.23	1.48	2	0.0
September---	74.9	37.2	56.1	96	22	482	1.25	0.44	1.98	3	0.0
October-----	62.3	30.1	46.2	84	13	211	1.43	0.58	2.24	4	0.2
November----	45.2	26.0	35.6	66	2	37	1.88	1.16	2.53	6	6.0
December----	35.3	19.0	27.1	57	-16	10	2.00	0.92	2.94	6	10.8
Yearly:											
Average---	59.6	31.6	45.6	---	---	---	---	---	---	---	---
Extreme---	107	-32	---	101	-22	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,458	17.33	14.62	19.55	50	40.0

\* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Enterprise R S, OR2672;  
Enterprise 20 NNE, OR2678; Minam 7 NE, OR5610; and  
Wallowa, OR8997)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
ENTERPRISE R S			
Last freezing temperature in spring:			
1 year in 10 later than--	May 27	June 26	July 19
2 years in 10 later than--	May 20	June 17	July 12
5 years in 10 later than--	May 6	May 29	June 27
First freezing temperature in fall:			
1 year in 10 earlier than--	September 9	September 2	August 12
2 years in 10 earlier than--	September 15	September 7	August 17
5 years in 10 earlier than--	September 27	September 16	August 27
ENTERPRISE 20 NNE			
Last freezing temperature in spring:			
1 year in 10 later than--	May 26	June 29	July 17
2 years in 10 later than--	May 19	June 19	July 11
5 years in 10 later than--	May 8	June 1	June 29
First freezing temperature in fall:			
1 year in 10 earlier than--	September 8	September 2	August 8
2 years in 10 earlier than--	September 14	September 5	August 14
5 years in 10 earlier than--	September 24	September 11	August 26

Table 2.--Freeze Dates in Spring and Fall--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
MINAM 7 NE			
Last freezing temperature in spring:			
1 year in 10 later than--	June 28	July 26	August 2
2 years in 10 later than--	June 16	July 17	July 29
5 years in 10 later than--	May 25	July 1	July 21
First freezing temperature in fall:			
1 year in 10 earlier than--	August 27	August 6	July 30
2 years in 10 earlier than--	September 2	August 12	August 4
5 years in 10 earlier than--	September 13	August 24	August 13
WALLOWA			
Last freezing temperature in spring:			
1 year in 10 later than--	May 16	June 7	July 6
2 years in 10 later than--	May 10	June 1	June 29
5 years in 10 later than--	April 29	May 19	June 14
First freezing temperature in fall:			
1 year in 10 earlier than--	September 15	September 2	August 18
2 years in 10 earlier than--	September 21	September 7	August 24
5 years in 10 earlier than--	October 4	September 16	September 3

Table 3.--Growing Season

(Recorded for the period 1961-90 at Enterprise R S, OR2672; Enterprise 20 NNE, OR2678; Minam 7 NE, OR5610; and Wallowa, OR8997)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<i>Days</i>	<i>Days</i>	<i>Days</i>
ENTERPRISE R S			
9 years in 10	113	77	25
8 years in 10	123	88	37
5 years in 10	143	110	59
2 years in 10	163	131	81
1 year in 10	173	142	93
ENTERPRISE 20 NNE			
9 years in 10	112	73	33
8 years in 10	121	82	41
5 years in 10	138	102	58
2 years in 10	155	121	75
1 year in 10	164	131	83
MINAM 7 NE			
9 years in 10	70	21	4
8 years in 10	83	32	11
5 years in 10	107	54	24
2 years in 10	131	76	37
1 year in 10	144	88	44
WALLOWA			
9 years in 10	131	96	54
8 years in 10	139	104	63
5 years in 10	156	119	80
2 years in 10	173	135	97
1 year in 10	182	143	106



Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1	Akerite silt loam, 2 to 8 percent slopes-----	2,809	0.3
2	Akerite silt loam, 8 to 15 percent slopes-----	878	*
3	Albee-Anatone complex, 2 to 15 percent slopes-----	679	*
4	Albee-Bocker complex, 2 to 15 percent slopes-----	18,836	2.0
5	Analulu-Slicklog-Bluecanyon complex, 30 to 60 percent south slopes-----	44	*
6	Analulu-Slicklog-Rock outcrop complex, 60 to 90 percent south slopes-----	198	*
7	Anatone-Bocker complex, 2 to 15 percent slopes-----	4,545	0.5
8	Anatone-Bocker complex, 15 to 30 percent south slopes-----	1,307	0.1
9	Anatone-Bocker complex, 30 to 60 percent south slopes-----	3,177	0.3
10	Anatone-Bocker-Fivebit complex, 0 to 15 percent slopes-----	255	*
11	Anatone-Bocker-Fivebit complex, 30 to 60 percent south slopes-----	1,761	0.2
12	Anatone-Cherrycreek-Imnaha complex, 30 to 60 percent north slopes-----	17,396	1.9
13	Anatone-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes-----	763	*
14	Anatone-Kamela complex, 30 to 60 percent slopes-----	594	*
15	Anatone-Klicker-Rock outcrop complex, 60 to 90 percent south slopes-----	447	*
16	Anatone-Linecreek-Rock outcrop complex, 60 to 90 percent south slopes-----	1,242	0.1
17	Anatone-Olot complex, 30 to 60 percent south slopes-----	1,175	0.1
18	Anatone-Rock outcrop-Clearline complex, 60 to 90 percent south slopes-----	5,345	0.6
19	Anatone-Rock outcrop-Fivebit complex, 60 to 90 percent south slopes-----	919	*
20	Anatone-Rock outcrop-Imnaha complex, 60 to 90 percent north slopes-----	466	*
21	Balm-Catherine complex, 0 to 3 percent slopes-----	1,113	0.1
22	Bittercreek-Mippon complex, 0 to 3 percent slopes-----	650	*
23	Bocker extremely cobbly silt loam, 2 to 8 percent slopes-----	872	*
24	Bocker-Anatone-Rock outcrop complex, 2 to 15 percent slopes-----	2,193	0.2
25	Bocker-Anatone-Rock outcrop complex, 15 to 30 percent slopes-----	1,122	0.1
26	Bocker-Clearline-Rock outcrop complex, 60 to 90 percent south slopes-----	5,529	0.6
27	Bocker-Imnaha-Rock outcrop complex, 30 to 60 percent south slopes-----	4,923	0.5
28	Bridgewater extremely stony sandy loam, 0 to 15 percent slopes-----	54	*
29	Btree-Flycreek complex, 15 to 30 percent north slopes-----	944	0.1
30	Btree-Flycreek complex, 30 to 60 percent north slopes-----	1,558	0.2
31	Btree-Flycreek-Anatone complex, 30 to 60 percent north slopes-----	235	*
32	Btree-Flycreek-Anatone complex, 60 to 90 percent north slopes-----	846	*
33	Btree-Klicker-Anatone complex, 60 to 90 percent slopes-----	258	*
34	Bucketlake silt loam, 15 to 30 percent north slopes-----	247	*
35	Bucketlake silt loam, 30 to 60 percent north slopes-----	106	*
36	Buford-Anatone complex, 2 to 15 percent slopes-----	885	*
37	Buford-Bocker complex, 2 to 15 percent slopes-----	3,625	0.4
38	Bunchpoint silt loam, 0 to 15 percent slopes-----	744	*
39	Bunchpoint-Bocker complex, 0 to 15 percent slopes-----	1,315	0.1
40	Chard very fine sandy loam, 15 to 30 percent slopes-----	94	*
41	Cherrycreek-Imnaha complex, 2 to 15 percent slopes-----	208	*
42	Cherrycreek-Imnaha complex, 15 to 30 percent north slopes-----	2,493	0.3
43	Cherrycreek-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes---	8,271	0.9
44	Cherrycreek-Limberjim-Rock outcrop complex, 30 to 60 percent north slopes	375	*
45	Chesnimnus silt loam, 0 to 3 percent slopes-----	1,856	0.2
46	Chesnimnus gravelly loam, 0 to 3 percent slopes-----	1,671	0.2
47	Cheval silt loam, 0 to 2 percent slopes-----	2,524	0.3
48	Cloverland silt loam, 2 to 8 percent slopes-----	3,541	0.4
49	Cloverland silt loam, 8 to 15 percent slopes-----	2,545	0.3
50	Conley silty clay loam, 0 to 2 percent slopes-----	1,537	0.2
51	Conley silty clay loam, 2 to 8 percent slopes-----	284	*
52	Copperfield-Thiessen complex, 30 to 60 percent north slopes-----	1,594	0.2
53	Copperfield-Thiessen-Rock outcrop complex, 60 to 90 percent north slopes	5,371	0.6
54	Cowsly silt loam, 2 to 8 percent slopes-----	16,155	1.7
55	Cowsly silt loam, 8 to 15 percent slopes-----	6,864	0.7
56	Cowsly stony silt loam, 2 to 15 percent slopes-----	3,871	0.4
57	Cowsly complex, 2 to 30 percent north slopes-----	5,240	0.6
58	Cowsly complex, 2 to 30 percent south slopes-----	1,784	0.2
59	Cowsly-Howmeadows-Sherod complex, 0 to 15 percent slopes-----	19,634	2.1
60	Demasters-Snell complex, 30 to 70 percent north slopes-----	23	*
61	Dixiejett-Licksillet-Rockly complex, 30 to 60 percent south slopes-----	11,243	1.2
62	Doublecreek-Flybow-Rock outcrop complex, 30 to 60 percent slopes-----	337	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
63	Doublecreek-Langrell complex, 0 to 15 percent slopes-----	604	*
64	Doublecreek-Phys complex, 2 to 15 percent slopes-----	3,142	0.3
65	Downards-Anatone-Rock outcrop complex, 60 to 90 percent north slopes-----	577	*
66	Downards-Emily-Sopher complex, 30 to 60 percent north slopes-----	38	*
67	Downards-Klicker complex, 15 to 30 percent south slopes-----	869	*
68	Downards-Klicker complex, 30 to 60 percent south slopes-----	954	0.1
69	Downeygulch-Lowerbluff complex, 0 to 15 percent slopes-----	1,603	0.2
70	Downeygulch-Thirstygulch complex, 15 to 30 percent slopes-----	568	*
71	Eggleson gravelly loam, 0 to 2 percent slopes-----	1,203	0.1
72	Emily-Wolot complex, 15 to 30 percent slopes-----	594	*
73	Endoaquolls, 0 to 3 percent slopes-----	353	*
74	Ferguson very fine sandy loam, 2 to 15 percent slopes-----	1,527	0.2
75	Ferguson very fine sandy loam, 15 to 30 percent north slopes-----	747	*
76	Ferguson very fine sandy loam, 30 to 60 percent north slopes-----	273	*
77	Ferguson very fine sandy loam, 15 to 30 percent south slopes-----	206	*
78	Ferguson very fine sandy loam, 30 to 60 percent south slopes-----	163	*
79	Flybow-Rubble land-Rock outcrop complex, 30 to 60 percent south slopes---	102	*
80	Flybow-Rubble land-Rock outcrop complex, 60 to 90 percent south slopes---	180	*
81	Flycreek-Flyvalley complex, 2 to 15 percent slopes-----	1,612	0.2
82	Freels silt loam, 0 to 3 percent slopes-----	3,918	0.4
83	Geisercreek silt loam, 15 to 30 percent north slopes-----	134	*
84	Gelsinger silt loam, 2 to 8 percent slopes-----	1,084	0.1
85	Gelsinger silt loam, 8 to 15 percent slopes-----	42	*
86	Getaway cobbly silt loam, 15 to 30 percent north slopes-----	2,313	0.2
87	Getaway cobbly silt loam, 30 to 60 percent north slopes-----	1,909	0.2
88	Getaway-Anatone-Rock outcrop complex, 60 to 90 percent slopes-----	8,156	0.9
89	Getaway-Harlow complex, 15 to 30 percent north slopes-----	2,619	0.3
90	Getaway-Harlow complex, 30 to 60 percent north slopes-----	3,715	0.4
91	Getaway-Harlow-Rock outcrop complex, 60 to 90 percent north slopes-----	1,727	0.2
92	Getaway-Linecreek-Anatone complex, 30 to 60 percent slopes-----	2,925	0.3
93	Getaway-Snell complex, 30 to 70 percent north slopes-----	9	*
94	Gwin-Kettenbach-Rock outcrop complex, 30 to 60 percent south slopes-----	7,810	0.8
95	Gwin-Kettenbach-Rock outcrop complex, 60 to 90 percent south slopes-----	15,024	1.6
96	Gwin-Klickson-Kettenbach association, 60 to 90 percent slopes-----	382	*
97	Gwinly-Kettenbach-Rock outcrop complex, 60 to 90 percent south slopes----	9,292	1.0
98	Gwinly-Mallory complex, 3 to 30 percent slopes-----	502	*
99	Gwinly-Mallory complex, 30 to 70 percent south slopes-----	1,090	0.1
100	Gwinly-Mallory-Kettenbach complex, 15 to 30 percent south slopes-----	2,422	0.3
101	Gwinly-Mallory-Kettenbach complex, 30 to 60 percent south slopes-----	16,744	1.8
102	Gwinly-Mallory-Kettenbach complex, 60 to 90 percent south slopes-----	6,261	0.7
103	Gwinly-Mallory-Rock outcrop complex, 40 to 90 percent south slopes-----	2,135	0.2
104	Gwinly-Rockly complex, 2 to 15 percent slopes-----	222	*
105	Gwinly-Rockly-Rock outcrop complex, 60 to 120 percent north slopes-----	274	*
106	Gwinly-Sopher complex, 60 to 90 percent south slopes-----	1,093	0.1
107	Gwinly-Sopher-Rock outcrop complex, 60 to 90 percent north slopes-----	2,988	0.3
108	Hapludolls-Endoaquolls-Endoaquents complex, 0 to 5 percent slopes-----	683	*
109	Harl-Anatone-Rock outcrop complex, 30 to 60 percent north slopes-----	927	*
110	Harl-Anatone-Rock outcrop complex, 60 to 90 percent north slopes-----	3,128	0.3
111	Harl-Getaway association, 30 to 60 percent slopes-----	2,667	0.3
112	Harl-Limberjim-Rock outcrop complex, 60 to 90 percent north slopes-----	2,261	0.2
113	Harlow-Bocker complex, 2 to 15 percent slopes-----	31,684	3.4
114	Harlow-Bocker complex, 15 to 30 percent south slopes-----	28,384	3.1
115	Harlow-Bocker complex, 30 to 60 percent south slopes-----	9,117	1.0
116	Harlow-Bocker complex, moist, 2 to 15 percent slopes-----	607	*
117	Harlow-Bocker-Rock outcrop complex, 60 to 90 percent south slopes-----	406	*
118	Harlow-Imnaha-Rock outcrop complex, moist, 2 to 15 percent slopes-----	346	*
119	Harlow-Imnaha-Rock outcrop complex, moist, 30 to 60 percent south slopes	930	0.1
120	Harlow-Imnaha-Rock outcrop complex, moist, 60 to 90 percent south slopes	2,668	0.3
121	Harlow-Klicker complex, 30 to 60 percent south slopes-----	1,045	0.1
122	Harlow-Klicker complex, 60 to 90 percent south slopes-----	104	*
123	Harlow-Snell-Imnaha complex, moist, 2 to 15 percent slopes-----	5,146	0.6

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
124	Harlow-Snell-Imnaha complex, moist, 15 to 30 percent south slopes-----	2,906	0.3
125	Harlow-Snell-Imnaha complex, moist, 30 to 60 percent south slopes-----	4,438	0.5
126	Harlow-Snell-Rock outcrop complex, 40 to 90 percent south slopes-----	16	*
127	Harlow-Tamarackcanyon-Linecreek complex, 60 to 90 percent south slopes---	1,434	0.2
128	Harlow-Tamarackcanyon-Olot complex, 30 to 60 percent south slopes-----	2,175	0.2
129	Harlow-Threebuck complex, 30 to 60 percent north slopes-----	2,141	0.2
130	Hershal silt loam, 0 to 2 percent slopes-----	410	*
131	Hershal-Voats complex, 0 to 2 percent slopes-----	983	0.1
132	Hershal-Voats-Veazie complex, 0 to 2 percent slopes-----	1,243	0.1
133	Howmeadows-Wilkins complex, 0 to 3 percent slopes-----	1,125	0.1
134	Hurwal silt loam, 2 to 8 percent slopes-----	8,124	0.9
135	Hurwal silt loam, 8 to 15 percent slopes-----	8,530	0.9
136	Hurwal silt loam, 15 to 30 percent north slopes-----	4,914	0.5
137	Hurwal silt loam, 30 to 60 percent north slopes-----	324	*
138	Hurwal silt loam, moist, 2 to 8 percent slopes-----	303	*
139	Hurwal silt loam, moist, 8 to 15 percent slopes-----	537	*
140	Hurwal silt loam, moist, 15 to 30 percent north slopes-----	277	*
141	Imnaha-Anatone complex, 15 to 30 percent south slopes-----	3,040	0.3
142	Imnaha-Anatone complex, 30 to 60 percent north slopes-----	499	*
143	Imnaha-Bocker-Clearline complex, 30 to 60 percent south slopes-----	19,366	2.1
144	Imnaha-Cherrycreek-Anatone association, 30 to 60 percent slopes-----	2,683	0.3
145	Imnaha-Clearline-Rock outcrop complex, 60 to 90 percent south slopes-----	4,981	0.5
146	Imnaha-Rock outcrop-Cherrycreek complex, 60 to 90 percent north slopes---	3,025	0.3
147	Josset loam, 0 to 2 percent slopes-----	951	0.1
148	Kahler-Anatone complex, 30 to 60 percent slopes-----	891	*
149	Kahler-Anatone-Rock outcrop complex, 60 to 90 percent slopes-----	128	*
150	Kahler-Linecreek-Getaway complex, 30 to 60 percent north slopes-----	3,031	0.3
151	Kahler-Linecreek-Getaway complex, 60 to 90 percent north slopes-----	1,062	0.1
152	Klicker stony silt loam, 2 to 15 percent slopes-----	2,298	0.2
153	Klicker stony silt loam, 15 to 30 percent north slopes-----	813	*
154	Klicker stony silt loam, 30 to 60 percent north slopes-----	981	0.1
155	Klicker stony silt loam, 15 to 30 percent south slopes-----	2,331	0.3
156	Klicker stony silt loam, 30 to 60 percent south slopes-----	444	*
157	Klicker-Anatone complex, 2 to 15 percent slopes-----	15,949	1.7
158	Klicker-Anatone complex, 15 to 30 percent south slopes-----	5,326	0.6
159	Klicker-Anatone complex, 30 to 60 percent south slopes-----	3,983	0.4
160	Klicker-Fivebit-Anatone complex, 0 to 15 percent slopes-----	622	*
161	Klicker-Fivebit-Anatone complex, 30 to 60 percent slopes-----	782	*
162	Klicker-Harlow complex, 15 to 30 percent south slopes-----	1,076	0.1
163	Klicker-Kamela-Fivebit complex, 60 to 90 percent slopes-----	321	*
164	Klicker-Olot complex, 30 to 60 percent north slopes-----	396	*
165	Klicker-Thirstygulch-Anatone complex, 15 to 30 percent slopes-----	587	*
166	Klicker-Thirstygulch-Anatone complex, 30 to 60 percent slopes-----	1,577	0.2
167	Klicker-Rock outcrop-Anatone complex, 60 to 90 percent slopes-----	788	*
168	Klickson-Anatone-Larabee complex, 30 to 60 percent north slopes-----	2,166	0.2
169	Klickson-Anatone-Larabee complex, 60 to 90 percent north slopes-----	3,276	0.4
170	Klickson-Larabee complex, 15 to 30 percent north slopes-----	77	*
171	Klickson-Larabee-Volstead complex, 30 to 60 percent north slopes-----	486	*
172	Langrell gravelly loam, 0 to 3 percent slopes-----	3,671	0.4
173	Langrell-Snow complex, 0 to 3 percent slopes-----	297	*
174	Larabee-Getaway-Klickson complex, 30 to 60 percent north slopes-----	1,957	0.2
175	Larabee-Klickson-Volstead complex, 15 to 30 percent north slopes-----	38	*
176	Larabee-Klickson-Volstead complex, 30 to 60 percent north slopes-----	596	*
177	Larabee-Melhorn complex, 0 to 15 percent slopes-----	136	*
178	Larabee-Volstead complex, 15 to 30 percent north slopes-----	31	*
179	Laufer-Thiessen complex, 2 to 15 percent slopes-----	1,839	0.2
180	Laufer-Thiessen complex, 15 to 30 percent south slopes-----	3,484	0.4
181	Laufer-Thiessen complex, 30 to 60 percent south slopes-----	2,834	0.3
182	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes-----	824	*
183	Lawyer-Gwinly complex, 40 to 90 percent north slopes-----	796	*
184	Lickskillet-Dixiejett-Rock outcrop complex, 60 to 90 percent south slopes	119	*
185	Lickskillet-Doublecreek-Rockly complex, 2 to 15 percent slopes-----	234	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
186	Licksillet-Doublecreek-Rockly complex, 15 to 30 percent south slopes----	1,510	0.2
187	Limberjim silt loam, 2 to 15 percent slopes-----	433	*
188	Limberjim-Anatone complex, 30 to 60 percent north slopes-----	370	*
189	Limberjim-Syrupcreek complex, 15 to 30 percent north slopes-----	3,827	0.4
190	Limberjim-Syrupcreek complex, 30 to 60 percent north slopes-----	4,634	0.5
191	Limberjim-Tamara complex, 0 to 15 percent slopes-----	254	*
192	Linecreek-Getaway complex, 60 to 90 percent north slopes-----	510	*
193	Lookingglass silt loam, 2 to 8 percent slopes-----	2,944	0.3
194	Lookingglass silt loam, 8 to 15 percent slopes-----	2,857	0.3
195	Lookingglass stony silt loam, 2 to 15 percent slopes-----	958	0.1
196	Lookingglass complex, 2 to 30 percent south slopes-----	2,688	0.3
197	Lookingglass-Sopher complex, 2 to 30 percent north slopes-----	2,751	0.3
198	Lookingglass-Sopher complex, 2 to 30 percent south slopes-----	1,532	0.2
199	Lostine silt loam, 0 to 3 percent slopes-----	2,799	0.3
200	Mallory-Gwinly-Lawyer complex, 15 to 30 percent north slopes-----	192	*
201	Mallory-Gwinly-Lawyer complex, 30 to 60 percent north slopes-----	724	*
202	Mallory-Lawyer-Rock outcrop complex, 60 to 90 percent north slopes-----	3,788	0.4
203	Matheny-Linville-Laufer complex, 40 to 90 percent north slopes-----	36	*
204	Matterhorn gravelly fine sandy loam, 0 to 3 percent slopes-----	790	*
205	Minam loam, 2 to 8 percent slopes-----	5,431	0.6
206	Minam loam, 8 to 15 percent slopes-----	1,138	0.1
207	Minam gravelly loam, 2 to 8 percent slopes-----	1,103	0.1
208	Minam gravelly loam, 8 to 15 percent slopes-----	1,858	0.2
209	Minam cobbly loam, 2 to 15 percent slopes-----	647	*
210	Minam stony loam, 2 to 8 percent slopes-----	46	*
211	Minam stony loam, 8 to 15 percent slopes-----	408	*
212	Minam-Endoaquepts complex, 2 to 8 percent slopes-----	574	*
213	Minam-Endoaquepts complex, 8 to 15 percent slopes-----	171	*
214	Mippon loam, 0 to 3 percent slopes-----	728	*
215	Mountemily-Troutmeadows complex, 15 to 30 percent north slopes-----	153	*
216	Mountemily-Troutmeadows complex, 30 to 60 percent north slopes-----	1,325	0.1
217	Mountemily-Troutmeadows complex, 60 to 90 percent north slopes-----	212	*
218	Mountemily-Troutmeadows-Anatone complex, 60 to 90 percent north slopes---	217	*
219	Needhill-Parsnip-Bocker complex, 15 to 30 percent slopes-----	1,719	0.2
220	Needhill-Zumwalt complex, 0 to 15 percent slopes-----	2,302	0.2
221	Olot silt loam, 2 to 15 percent slopes-----	2,129	0.2
222	Olot silt loam, 15 to 30 percent north slopes-----	582	*
223	Olot-Anatone complex, 2 to 15 percent slopes-----	10,657	1.1
224	Olot-Anatone complex, 15 to 30 percent south slopes-----	3,971	0.4
225	Parsnip silt loam, 2 to 8 percent slopes-----	952	0.1
226	Parsnip-Bocker complex, 0 to 15 percent slopes-----	7,883	0.8
227	Phys cobbly loam, 2 to 8 percent slopes-----	617	*
228	Phys-Doublecreek-Collegecreek complex, 2 to 15 percent slopes-----	389	*
229	Phys-Doublecreek-Collegecreek complex, 15 to 30 percent slopes-----	699	*
230	Powwatka silt loam, 2 to 8 percent slopes-----	6,307	0.7
231	Powwatka silt loam, 8 to 15 percent slopes-----	6,098	0.7
232	Powwatka silt loam, 15 to 30 percent north slopes-----	1,130	0.1
233	Powwatka silt loam, 15 to 30 percent south slopes-----	341	*
234	Puzzlecreek very stony very fine sandy loam, 20 to 60 percent north slopes-----	59	*
235	Ramo silty clay loam, 2 to 8 percent slopes-----	288	*
236	Ramo silty clay loam, 8 to 15 percent slopes-----	273	*
237	Ramo silty clay loam, 15 to 30 percent north slopes-----	101	*
238	Ramo-Conley complex, 2 to 15 percent slopes-----	514	*
239	Reavis silt loam, 0 to 3 percent slopes-----	4,171	0.4
240	Redmount silt loam, 0 to 3 percent slopes-----	3,568	0.4
241	Redmount silt loam, 3 to 8 percent slopes-----	54	*
242	Redmount gravelly silt loam, 0 to 3 percent slopes-----	2,376	0.3
243	Redmount-Cheval complex, 0 to 2 percent slopes-----	132	*
244	Riverwash-----	138	*
245	Rock outcrop, limestone, 60 to 90 percent slopes-----	7	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
246	Rock outcrop-Anatone-Fivebit complex, scarp, 60 to 90 percent south slopes-----	440	*
247	Rock outcrop-Anatone-Imnaha complex, scarp, 60 to 90 percent north slopes-----	986	0.1
248	Rock outcrop-Anatone-Imnaha complex, scarp, 60 to 90 percent south slopes-----	6,876	0.7
249	Rock outcrop-Imnaha-Cherrycreek complex, scarp, 60 to 90 percent north slopes-----	5,086	0.5
250	Rock outcrop-Linecreek-Anatone complex, scarp, 60 to 90 percent slopes---	337	*
251	Rock outcrop-Rockly-Dixiejett complex, scarp, 60 to 90 percent south slopes-----	6,869	0.7
252	Rockly-Rock outcrop-Copperfield complex, 60 to 90 percent north slopes---	492	*
253	Rockly-Rock outcrop-Lickskillet complex, 60 to 90 percent south slopes---	2,484	0.3
254	Rondowa silt loam, 2 to 8 percent slopes-----	827	*
255	Rondowa silt loam, 8 to 15 percent slopes-----	267	*
256	Rondowa stony loam, 2 to 15 percent slopes-----	673	*
257	Rondowa stony loam, 15 to 30 percent north slopes-----	459	*
258	Rondowa stony loam, 30 to 60 percent north slopes-----	355	*
259	Rondowa stony loam, 15 to 30 percent south slopes-----	325	*
260	Rondowa stony loam, 30 to 60 percent south slopes-----	760	*
261	Rondowa bouldery loam, 2 to 15 percent slopes-----	607	*
262	Rondowa bouldery loam, 15 to 30 percent north slopes-----	59	*
263	Rondowa bouldery loam, 30 to 60 percent north slopes-----	588	*
264	Rondowa bouldery loam, 15 to 30 percent south slopes-----	52	*
265	Rondowa bouldery loam, 30 to 60 percent south slopes-----	247	*
266	Rubble land-Rock outcrop complex, 60 to 90 percent slopes-----	46	*
267	Sag silt loam, 15 to 30 percent north slopes-----	134	*
268	Sag silt loam, 30 to 60 percent north slopes-----	1,244	0.1
269	Sag silt loam, 60 to 90 percent north slopes-----	108	*
270	Schrier silt loam, 2 to 8 percent slopes-----	296	*
271	Schrier-Almota complex, 15 to 30 percent north slopes-----	42	*
272	Schrier-Almota-Rock outcrop complex, 30 to 60 percent north slopes-----	1,079	0.1
273	Schuelke-Schrier-Rockly complex, 8 to 30 percent slopes-----	2,122	0.2
274	Silverlake silt loam, 0 to 3 percent slopes-----	2,683	0.3
275	Slicklog gravelly loam, 15 to 30 percent slopes-----	160	*
276	Slicklog-Eastpine complex, 30 to 60 percent north slopes-----	167	*
277	Slicklog-Eastpine-Rock outcrop complex, 60 to 90 percent north slopes---	70	*
278	Slicklog-Wintercanyon-Rock outcrop complex, 60 to 90 percent north slopes---	201	*
279	Snell silty clay loam, 3 to 8 percent slopes-----	16	*
280	Snell-Harlow complex, 2 to 15 percent slopes-----	12,055	1.3
281	Snell-Harlow complex, 15 to 30 percent north slopes-----	20,468	2.2
282	Snell-Harlow complex, 30 to 60 percent north slopes-----	6,529	0.7
283	Snell-Harlow complex, 15 to 30 percent south slopes-----	4,612	0.5
284	Snell-Harlow silt loams, 0 to 15 percent slopes-----	4,201	0.5
285	Snell-Harlow-Imnaha complex, moist, 15 to 30 percent north slopes-----	1,308	0.1
286	Snell-Harlow-Imnaha complex, moist, 30 to 60 percent north slopes-----	3,005	0.3
287	Snell-Harlow-Rock outcrop complex, 60 to 90 percent north slopes-----	118	*
288	Snell-Imnaha-Rock outcrop complex, moist, 60 to 90 percent north slopes---	1,792	0.2
289	Snow silt loam, 0 to 3 percent slopes-----	2,087	0.2
290	Sopher stony loam, 15 to 30 percent south slopes-----	804	*
291	Sopher stony loam, 30 to 60 percent south slopes-----	268	*
292	Sopher-Gwinly complex, 30 to 60 percent north slopes-----	1,048	0.1
293	Sopher-Gwinly complex, 15 to 30 percent south slopes-----	3,944	0.4
294	Sopher-Gwinly complex, 30 to 60 percent south slopes-----	3,705	0.4
295	Sturgill silt loam, 0 to 2 percent slopes-----	641	*
296	Sturgill-Eggleson complex, 0 to 2 percent slopes-----	773	*
297	Sweetberg silt loam, 2 to 8 percent slopes-----	2,552	0.3
298	Sweetberg silt loam, 8 to 15 percent slopes-----	1,372	0.1
299	Sweiting silt loam, 2 to 15 percent slopes-----	1	*
300	Sweiting silt loam, 15 to 30 percent north slopes-----	13	*
301	Sweiting-Harlow complex, 2 to 15 percent slopes-----	237	*
302	Sweiting-Harlow complex, 15 to 30 percent south slopes-----	10	*

See footnote at end of table.



Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
303	Sweiting-Klicker complex, 15 to 30 percent south slopes-----	191	*
304	Syrupcreek silt loam, 0 to 15 percent slopes-----	1,632	0.2
305	Syrupcreek-Anatone complex, 0 to 15 percent slopes-----	2,647	0.3
306	Syrupcreek-Lowerbluff complex, 2 to 15 percent slopes-----	1,448	0.2
307	Syrupcreek-Tamara complex, 15 to 30 percent north slopes-----	9,070	1.0
308	Syrupcreek-Tamara complex, 30 to 60 percent north slopes-----	542	*
309	Tamara-Sherod complex, 0 to 15 percent slopes-----	1,366	0.1
310	Tamara-Syrupcreek complex, 0 to 15 percent slopes-----	23,295	2.5
311	Tamarackcanyon-Linecreek-Harlow complex, 60 to 90 percent south slopes---	719	*
312	Tamarackcanyon-Lowerbluff complex, 2 to 15 percent slopes-----	3,798	0.4
313	Tamarackcanyon-Olot-Harlow complex, 15 to 30 percent south slopes-----	1,115	0.1
314	Tamarackcanyon-Olot-Harlow complex, 30 to 60 percent south slopes-----	2,894	0.3
315	Tannahill-Schrier-Rock outcrop complex, 60 to 90 percent slopes-----	390	*
316	Tannahill-Schuelke-Licksillet complex, 30 to 60 percent south slopes----	1,981	0.2
317	Thiessen very cobbly silt loam, 15 to 30 percent north slopes-----	237	*
318	Threebuck-Harlow complex, dry, 2 to 15 percent slopes-----	728	*
319	Threebuck-Linecreek-Harlow complex, 60 to 90 percent north slopes-----	5,079	0.5
320	Threebuck-Tamarackcanyon complex, 15 to 30 percent north slopes-----	6,716	0.7
321	Threebuck-Tamarackcanyon complex, 30 to 60 percent north slopes-----	7,741	0.8
322	Threebuck-Tamarackcanyon-Harlow complex, 30 to 60 percent north slopes---	11,729	1.3
323	Threebuck-Tamarackcanyon-Linecreek complex, 60 to 90 percent north slopes	2,546	0.3
324	Tippett-Harlow complex, 0 to 3 percent slopes-----	1,931	0.2
325	Tippett-Zumwalt complex, 0 to 3 percent slopes-----	5,225	0.6
326	Tolo silt loam, 2 to 15 percent slopes-----	3,577	0.4
327	Tolo silt loam, 15 to 30 percent north slopes-----	2,897	0.3
328	Tolo silt loam, fan, 2 to 15 percent slopes-----	162	*
329	Tolo-Getaway complex, 15 to 30 percent north slopes-----	4,677	0.5
330	Tolo-Getaway complex, 30 to 60 percent north slopes-----	4,244	0.5
331	Tolo-Getaway complex, dry, 15 to 30 percent north slopes-----	1,730	0.2
332	Tolo-Getaway complex, dry, 30 to 60 percent north slopes-----	1,104	0.1
333	Tolo-Olot complex, 2 to 15 percent slopes-----	4,108	0.4
334	Tolo-Olot complex, 15 to 30 percent south slopes-----	2,486	0.3
335	Topper silt loam, 2 to 8 percent slopes-----	2,868	0.3
336	Topper silt loam, 8 to 15 percent slopes-----	1,355	0.1
337	Topper silt loam, 15 to 30 percent north slopes-----	380	*
338	Topper silt loam, 15 to 30 percent south slopes-----	266	*
339	Troutmeadows-Crawfish complex, 2 to 15 percent slopes-----	106	*
340	Tuckerdowns gravelly loam, 2 to 8 percent slopes-----	548	*
341	Tuckerdowns gravelly loam, 8 to 15 percent slopes-----	424	*
342	Tuckerdowns gravelly loam, 15 to 30 percent south slopes-----	177	*
343	Vandamine-Bordengulch complex, 30 to 60 percent north slopes-----	37	*
344	Vandamine-Bordengulch-Rock outcrop complex, 60 to 90 percent north slopes	111	*
345	Veazie loam, 0 to 3 percent slopes-----	504	*
346	Voats-Veazie complex, 0 to 3 percent slopes-----	2,792	0.3
347	Volstead-Quirk-Bocker complex, 0 to 15 percent slopes-----	24	*
348	Volstead-Quirk-Bocker complex, 15 to 30 percent slopes-----	123	*
349	Wallowa-Bocker complex, 2 to 15 percent slopes-----	39,831	4.3
350	Watama silt loam, 2 to 8 percent slopes-----	627	*
351	Watama silt loam, 8 to 15 percent slopes-----	422	*
352	Watama-Rockly complex, 2 to 15 percent slopes-----	908	*
353	Water-----	2,918	0.3
354	Wilkins silt loam, 0 to 5 percent slopes-----	4,180	0.5
355	Wilkins-Feaginranch complex, 0 to 2 percent slopes-----	535	*
356	Wolot silt loam, 0 to 15 percent slopes-----	252	*
357	Zumwalt-Harlow complex, 2 to 8 percent slopes-----	6,375	0.7
358	Zumwalt-Harlow complex, 8 to 15 percent slopes-----	1,209	0.1
359	Zumwalt-Harlow complex, moist, 2 to 15 percent slopes-----	1,498	0.2
	Total-----	928,690	100.0

\* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
1: Akerite-----	4e	---	---	---	---	---	---	---	---	---	---	---
2: Akerite-----	4e	---	---	---	---	---	---	---	---	---	---	---
3: Albee-----	4e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
4: Albee-----	4e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
5: Analulu-----	6e	---	---	---	---	---	---	---	---	---	---	---
Slicklog-----	6e	---	---	---	---	---	---	---	---	---	---	---
Bluecanyon-----	7s	---	---	---	---	---	---	---	---	---	---	---
6: Analulu-----	7e	---	---	---	---	---	---	---	---	---	---	---
Slicklog-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
7: Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
8: Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
9: Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---





Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
18:												
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Clearline-----	7e	---	---	---	---	---	---	---	---	---	---	---
19:												
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Fivebit-----	7e	---	---	---	---	---	---	---	---	---	---	---
20:												
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	7e	---	---	---	---	---	---	---	---	---	---	---
21:												
Balm-----	3w	2w	---	5.00	---	---	---	4.00	---	8.00	---	---
Catherine-----	2w	2w	---	5.00	60.00	75.00	---	4.00	---	8.00	65.00	90.00
22:												
Bittercreek-----	3w	---	---	---	---	---	---	---	---	---	---	---
Mippon-----	4s	---	---	---	---	---	---	---	---	---	---	---
23:												
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
24:												
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
25:												
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
26:												
Bocker-----	7e	---	---	---	---	---	---	---	---	---	---	---
Clearline-----	7e	---	---	---	---	---	---	---	---	---	---	---



Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
36:												
Buford-----	3e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
37:												
Buford-----	3e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
38:												
Bunchpoint-----	4e	---	---	---	---	---	---	---	---	---	---	---
39:												
Bunchpoint-----	4e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
40:												
Chard-----	4e	---	---	---	---	---	---	---	---	---	---	---
41:												
Cherrycreek-----	4e	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	4e	---	---	---	---	---	---	---	---	---	---	---
42:												
Cherrycreek-----	4e	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	4e	---	---	---	---	---	---	---	---	---	---	---
Imnaha, moist-----	4e	---	---	---	---	---	---	---	---	---	---	---
43:												
Cherrycreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
44:												
Cherrycreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Limberjim-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
45:												
Chesnimnus-----	3c	3c	---	4.50	---	80.00	---	4.50	---	8.00	---	85.00
46:												
Chesnimnus-----	3c	3c	---	4.50	---	80.00	---	4.50	---	8.00	---	85.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
47: Cheval-----	3w	3w	---	---	---	---	---	4.00	---	8.00	---	---
48: Cloverland-----	3e	---	---	---	60.00	---	2.00	---	3.00	---	60.00	---
49: Cloverland-----	3e	---	---	---	60.00	---	2.00	---	3.00	---	60.00	---
50: Conley-----	3w	3w	2.50	4.00	---	---	---	---	3.00	8.00	---	---
51: Conley-----	3w	3w	2.50	4.00	---	---	---	---	3.00	8.00	---	---
52: Copperfield-----	6e	---	---	---	---	---	---	---	---	---	---	---
Thiessen-----	6s	---	---	---	---	---	---	---	---	---	---	---
53: Copperfield-----	7e	---	---	---	---	---	---	---	---	---	---	---
Thiessen-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
54: Cowsly-----	3e	---	---	---	55.00	---	2.00	---	3.00	---	70.00	---
55: Cowsly-----	3e	---	---	---	55.00	---	2.00	---	3.00	---	70.00	---
56: Cowsly-----	4e	---	---	---	---	---	---	---	---	---	---	---
57: Cowsly, cobbly-----	4e	---	---	---	---	---	---	---	---	---	---	---
Cowsly-----	3e	---	---	---	---	---	---	---	---	---	---	---
58: Cowsly, cobbly-----	4e	---	---	---	---	---	---	---	---	---	---	---
Cowsly-----	3e	---	---	---	---	---	---	---	---	---	---	---
59: Cowsly-----	3e	---	---	---	---	---	---	---	---	---	---	---
Howmeadows-----	4w	---	---	---	---	---	---	---	---	---	---	---
Sherod-----	6w	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
60:												
Demasters-----	7e	---	---	---	---	---	---	---	---	---	---	---
Snell-----	7e	---	---	---	---	---	---	---	---	---	---	---
61:												
Dixiejett-----	6e	---	---	---	---	---	---	---	---	---	---	---
Licksillet-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	7s	---	---	---	---	---	---	---	---	---	---	---
62:												
Doublecreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Flybow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
63:												
Doublecreek-----	3e	---	---	---	---	---	---	---	---	---	---	---
Langrell-----	3s	---	---	---	---	---	---	---	---	---	---	---
64:												
Doublecreek-----	3e	---	---	---	---	---	---	---	---	---	---	---
Phys-----	3s	---	---	---	---	---	---	---	---	---	---	---
65:												
Downards-----	7e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
66:												
Downards-----	6e	---	---	---	---	---	---	---	---	---	---	---
Emily-----	6e	---	---	---	---	---	---	---	---	---	---	---
Sopher-----	6e	---	---	---	---	---	---	---	---	---	---	---
67:												
Downards-----	6e	---	---	---	---	---	---	---	---	---	---	---
Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
68:												
Downards-----	6e	---	---	---	---	---	---	---	---	---	---	---
Klicker-----	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
69:												
Downeygulch-----	4e	---	---	---	---	---	---	---	---	---	---	---
Lowerbluff-----	6e	---	---	---	---	---	---	---	---	---	---	---
70:												
Downeygulch-----	4e	---	---	---	---	---	---	---	---	---	---	---
Thirstygulch-----	7s	---	---	---	---	---	---	---	---	---	---	---
71:												
Eggleson-----	4s	---	---	---	---	---	---	---	2.00	---	---	---
72:												
Emily-----	4e	---	---	---	---	---	---	---	---	---	---	---
Wolot-----	4e	---	---	---	---	---	---	---	---	---	---	---
73:												
Endoaquolls, mesic	4w	---	---	---	---	---	---	---	4.00	---	---	---
74:												
Ferguson-----	6e	---	---	---	---	---	---	---	---	---	---	---
75:												
Ferguson-----	6e	---	---	---	---	---	---	---	---	---	---	---
76:												
Ferguson-----	6e	---	---	---	---	---	---	---	---	---	---	---
77:												
Ferguson-----	6e	---	---	---	---	---	---	---	---	---	---	---
78:												
Ferguson-----	6e	---	---	---	---	---	---	---	---	---	---	---
79:												
Flybow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rubble land-----	8	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
80:												
Flybow-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rubble land-----	8	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---



Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
81: Flycreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Flyvalley-----	6e	---	---	---	---	---	---	---	---	---	---	---
82: Freels-----	3c	3c	---	---	---	---	---	5.00	2.00	8.00	---	---
83: Geisercreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
84: Gelsinger-----	2e	3e	2.50	4.00	---	65.00	---	5.00	8.00	---	50.00	70.00
85: Gelsinger-----	3e	4e	2.50	4.00	---	65.00	---	5.00	8.00	---	50.00	70.00
86: Getaway-----	4e	---	---	---	---	---	---	---	---	---	---	---
87: Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---
88: Getaway-----	7e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
89: Getaway-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
90: Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
91: Getaway-----	7e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
92: Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
93:												
Getaway-----	7e	---	---	---	---	---	---	---	---	---	---	---
Snell-----	7e	---	---	---	---	---	---	---	---	---	---	---
94:												
Gwin-----	7s	---	---	---	---	---	---	---	---	---	---	---
Kettenbach-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
95:												
Gwin-----	7e	---	---	---	---	---	---	---	---	---	---	---
Kettenbach-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
96:												
Gwin-----	7e	---	---	---	---	---	---	---	---	---	---	---
Klickson-----	7e	---	---	---	---	---	---	---	---	---	---	---
Kettenbach-----	7e	---	---	---	---	---	---	---	---	---	---	---
97:												
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Kettenbach-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
98:												
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
Mallory-----	6s	---	---	---	---	---	---	---	---	---	---	---
99:												
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Mallory-----	7e	---	---	---	---	---	---	---	---	---	---	---
100:												
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
Mallory-----	6s	---	---	---	---	---	---	---	---	---	---	---
Kettenbach-----	4e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
101:												
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
Mallory-----	6s	---	---	---	---	---	---	---	---	---	---	---
Kettenbach-----	6e	---	---	---	---	---	---	---	---	---	---	---
102:												
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Mallory-----	7e	---	---	---	---	---	---	---	---	---	---	---
Kettenbach-----	7e	---	---	---	---	---	---	---	---	---	---	---
103:												
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Mallory-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
104:												
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	7s	---	---	---	---	---	---	---	---	---	---	---
105:												
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
106:												
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Sopher-----	7e	---	---	---	---	---	---	---	---	---	---	---
107:												
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Sopher-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
108:												
Hapludolls, frigid	4w	---	---	---	---	---	---	---	---	---	---	---
Endoaquolls, frigid	4w	---	---	---	---	---	---	---	---	---	---	---
Endoaquents, frigid	4w	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
109:												
Harl-----	6e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
110:												
Harl-----	7e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
111:												
Harl-----	6e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---
112:												
Harl-----	7e	---	---	---	---	---	---	---	---	---	---	---
Limberjim-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
113:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
114:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
115:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
116:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
117:												
Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
118:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	4e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
119:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
120:												
Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
121:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Klicker-----	7e	---	---	---	---	---	---	---	---	---	---	---
122:												
Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---
Klicker-----	7e	---	---	---	---	---	---	---	---	---	---	---
123:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Snell-----	6s	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	4e	---	---	---	---	---	---	---	---	---	---	---
124:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Snell-----	6s	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	4e	---	---	---	---	---	---	---	---	---	---	---
125:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Snell-----	6s	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
126:												
Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---
Snell-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
127:												
Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---
Tamarackcanyon-----	7e	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
128:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Tamarackcanyon-----	6e	---	---	---	---	---	---	---	---	---	---	---
Olot-----	6e	---	---	---	---	---	---	---	---	---	---	---
129:												
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
Threebuck-----	6e	---	---	---	---	---	---	---	---	---	---	---
130:												
Hershal-----	3w	3w	---	---	---	---	---	4.00	---	8.00	---	---
131:												
Hershal-----	3w	3w	---	---	---	---	---	4.00	---	8.00	---	---
Voats-----	4s	4s	---	---	---	---	---	6.00	2.00	8.00	---	---
132:												
Hershal-----	3w	3w	---	---	---	---	---	4.00	---	8.00	---	---
Voats-----	4s	4s	---	---	---	---	---	6.00	2.00	8.00	---	---
Veazie-----	3w	3w	---	---	---	---	---	6.00	2.00	8.00	---	---
133:												
Howmeadows-----	4w	---	---	---	---	---	---	---	---	---	---	---
Wilkins-----	3w	---	---	---	---	---	---	---	---	---	---	---
134:												
Hurwal-----	3e	3e	---	---	55.00	70.00	2.00	5.00	3.00	6.00	60.00	80.00
135:												
Hurwal-----	3e	4e	---	---	55.00	70.00	2.00	5.00	3.00	6.00	60.00	80.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

[illegible]



Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
146: Cherrycreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
147: Josset-----	3w	3w	---	---	---	---	---	4.00	---	8.00	---	---
148: Kahler-----	6e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
149: Kahler-----	7e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
150: Kahler-----	6e	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---
151: Kahler-----	7e	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	7e	---	---	---	---	---	---	---	---	---	---	---
152: Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
153: Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
154: Klicker-----	6e	---	---	---	---	---	---	---	---	---	---	---
155: Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
156: Klicker-----	6e	---	---	---	---	---	---	---	---	---	---	---
157: Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
158:												
Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
159:												
Klicker-----	6e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
160:												
Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
Fivebit-----	7s	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
161:												
Klicker-----	6e	---	---	---	---	---	---	---	---	---	---	---
Fivebit-----	7s	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
162:												
Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
163:												
Klicker-----	7e	---	---	---	---	---	---	---	---	---	---	---
Kamela-----	7e	---	---	---	---	---	---	---	---	---	---	---
Fivebit-----	7e	---	---	---	---	---	---	---	---	---	---	---
164:												
Klicker-----	6e	---	---	---	---	---	---	---	---	---	---	---
Olot-----	6e	---	---	---	---	---	---	---	---	---	---	---
165:												
Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
166:												
Klicker-----	6e	---	---	---	---	---	---	---	---	---	---	---
Thirstygulch-----	7s	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
167:												
Klicker-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
168:												
Klickson-----	6e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
Larabee-----	6e	---	---	---	---	---	---	---	---	---	---	---
169:												
Klickson-----	7e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Larabee-----	7e	---	---	---	---	---	---	---	---	---	---	---
170:												
Klickson-----	4e	---	---	---	---	---	---	---	---	---	---	---
Larabee-----	4e	---	---	---	---	---	---	---	---	---	---	---
171:												
Klickson-----	6e	---	---	---	---	---	---	---	---	---	---	---
Larabee-----	6e	---	---	---	---	---	---	---	---	---	---	---
Volstead-----	6e	---	---	---	---	---	---	---	---	---	---	---
172:												
Langrell-----	3s	3s	---	5.00	---	65.00	---	5.00	1.00	8.00	---	70.00
173:												
Langrell-----	3s	3s	---	5.00	---	65.00	---	5.00	1.00	8.00	---	70.00
Snow-----	2c	2c	---	80.00	---	8.00	---	5.00	---	70.00	---	5.00
174:												
Larabee-----	6e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---
Klickson-----	6e	---	---	---	---	---	---	---	---	---	---	---
175:												
Larabee-----	4e	---	---	---	---	---	---	---	---	---	---	---
Klickson-----	4e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
175: Volstead-----	4e	---	---	---	---	---	---	---	---	---	---	---
176: Larabee-----	6e	---	---	---	---	---	---	---	---	---	---	---
Klickson-----	6e	---	---	---	---	---	---	---	---	---	---	---
Volstead-----	6e	---	---	---	---	---	---	---	---	---	---	---
177: Larabee-----	4e	---	---	---	---	---	---	---	---	---	---	---
Melhorn-----	3e	---	---	---	---	---	---	---	---	---	---	---
178: Larabee-----	4e	---	---	---	---	---	---	---	---	---	---	---
Volstead-----	4e	---	---	---	---	---	---	---	---	---	---	---
179: Laufer-----	7s	---	---	---	---	---	---	---	---	---	---	---
Thiessen-----	6s	---	---	---	---	---	---	---	---	---	---	---
180: Laufer-----	7s	---	---	---	---	---	---	---	---	---	---	---
Thiessen-----	6s	---	---	---	---	---	---	---	---	---	---	---
181: Laufer-----	7s	---	---	---	---	---	---	---	---	---	---	---
Thiessen-----	6s	---	---	---	---	---	---	---	---	---	---	---
182: Laufer-----	7e	---	---	---	---	---	---	---	---	---	---	---
Thiessen-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
183: Lawyer, stony-----	7e	---	---	---	---	---	---	---	---	---	---	---
Lawyer-----	7e	---	---	---	---	---	---	---	---	---	---	---
Gwinly-----	7e	---	---	---	---	---	---	---	---	---	---	---
184: Lickskillet-----	7e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
184:												
Dixiejett-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
185:												
Lickskillet-----	7s	---	---	---	---	---	---	---	---	---	---	---
Doublecreek-----	3e	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	7s	---	---	---	---	---	---	---	---	---	---	---
186:												
Lickskillet-----	7s	---	---	---	---	---	---	---	---	---	---	---
Doublecreek-----	4e	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	7s	---	---	---	---	---	---	---	---	---	---	---
187:												
Limberjim-----	6e	---	---	---	---	---	---	---	---	---	---	---
188:												
Limberjim-----	6e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
189:												
Limberjim-----	6e	---	---	---	---	---	---	---	---	---	---	---
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
190:												
Limberjim-----	6e	---	---	---	---	---	---	---	---	---	---	---
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
191:												
Limberjim-----	6e	---	---	---	---	---	---	---	---	---	---	---
Tamara-----	6e	---	---	---	---	---	---	---	---	---	---	---
192:												
Linecreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	7e	---	---	---	---	---	---	---	---	---	---	---
193:												
Lookingglass-----	3e	---	---	---	55.00	---	---	---	3.00	---	60.00	---
194:												
Lookingglass-----	3e	---	---	---	55.00	---	---	---	3.00	---	60.00	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
195: Lookingglass, stony	4e	---	---	---	55.00	---	---	---	3.00	---	60.00	---
196: Lookingglass, cobbly-----	4e	---	---	---	---	---	---	---	---	---	---	---
Lookingglass-----	3e	---	---	---	55.00	---	---	---	3.00	---	60.00	---
197: Lookingglass-----	3e	---	---	---	55.00	---	---	---	3.00	---	60.00	---
Sopher-----	4e	---	---	---	---	---	---	---	---	---	---	---
198: Lookingglass-----	3e	---	---	---	55.00	---	---	---	3.00	---	60.00	---
Sopher-----	4e	---	---	---	---	---	---	---	---	---	---	---
199: Lostine-----	3c	3c	3.00	5.00	35.00	80.00	---	5.00	---	8.00	30.00	100.00
200: Mallory-----	6s	---	---	---	---	---	---	---	---	---	---	---
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
Lawyer-----	4e	---	---	---	---	---	---	---	---	---	---	---
201: Mallory-----	6s	---	---	---	---	---	---	---	---	---	---	---
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
Lawyer-----	6e	---	---	---	---	---	---	---	---	---	---	---
202: Mallory-----	7e	---	---	---	---	---	---	---	---	---	---	---
Lawyer-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
203: Matheny-----	7e	---	---	---	---	---	---	---	---	---	---	---
Linville-----	7e	---	---	---	---	---	---	---	---	---	---	---
Laufer-----	7e	---	---	---	---	---	---	---	---	---	---	---
204: Matterhorn-----	4s	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
205: Minam-----	3e	3e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
206: Minam-----	3e	4e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
207: Minam-----	3e	3e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
208: Minam-----	3e	4e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
209: Minam-----	3e	---	---	---	---	---	---	---	---	---	---	---
210: Minam-----	4e	---	---	---	---	---	---	5.00	---	8.00	---	---
211: Minam-----	4e	---	---	---	---	---	---	5.00	---	8.00	---	---
212: Minam-----	3e	3e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
Minam, gravelly----	3e	3e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
Endoaquepts-----	4w	---	---	---	---	---	---	---	4.00	---	---	---
213: Minam, gravelly----	3e	4e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
Minam, stony-----	4e	4e	---	---	---	---	---	---	---	8.00	---	---
Endoaquepts-----	4w	---	---	---	---	---	---	---	4.00	---	---	---
214: Mippon-----	4s	---	---	---	---	---	---	---	---	---	---	---
215: Mountemily-----	6e	---	---	---	---	---	---	---	---	---	---	---
Troutmeadows-----	6e	---	---	---	---	---	---	---	---	---	---	---
216: Mountemily-----	6e	---	---	---	---	---	---	---	---	---	---	---
Troutmeadows-----	6e	---	---	---	---	---	---	---	---	---	---	---
217: Mountemily-----	7e	---	---	---	---	---	---	---	---	---	---	---
Troutmeadows-----	7e	---	---	---	---	---	---	---	---	---	---	---



Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
218:												
Mountemily-----	7e	---	---	---	---	---	---	---	---	---	---	---
Troutmeadows-----	7e	---	---	---	---	---	---	---	---	---	---	---
Anatone, cold-----	7e	---	---	---	---	---	---	---	---	---	---	---
219:												
Needhill-----	4e	---	---	---	---	---	---	---	---	---	---	---
Parsnip-----	6e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
220:												
Needhill-----	3e	---	---	---	---	---	---	---	---	---	---	---
Zumwalt-----	4e	---	---	---	---	---	---	---	---	---	---	---
221:												
Olot-----	4e	---	---	---	---	---	---	---	---	---	---	---
222:												
Olot-----	4e	---	---	---	---	---	---	---	---	---	---	---
223:												
Olot-----	4e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
224:												
Olot-----	4e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
225:												
Parsnip-----	6e	---	---	---	---	---	---	---	---	---	---	---
226:												
Parsnip-----	6e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
227:												
Phys-----	3s	3s	---	4.00	---	---	---	4.00	---	8.00	---	---
228:												
Phys-----	3s	---	---	---	---	---	---	---	---	---	---	---
Doublecreek-----	3e	---	---	---	---	---	---	---	---	---	---	---
Collegecreek-----	3e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
229:												
Phys-----	4s	---	---	---	---	---	---	---	---	---	---	---
Doublecreek-----	4e	---	---	---	---	---	---	---	---	---	---	---
Collegecreek-----	4e	---	---	---	---	---	---	---	---	---	---	---
230:												
Powwatka-----	4e	---	1.50	---	40.00	---	---	---	---	---	45.00	---
231:												
Powwatka-----	4e	---	1.50	---	40.00	---	---	---	---	---	45.00	---
232:												
Powwatka-----	4e	---	---	---	---	---	---	---	---	---	---	---
233:												
Powwatka-----	4e	---	---	---	---	---	---	---	---	---	---	---
234:												
Puzzlecreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
235:												
Ramo-----	2e	3e	4.00	5.00	---	65.00	---	5.00	---	8.00	50.00	70.00
236:												
Ramo-----	3e	4e	4.00	5.00	---	65.00	---	5.00	---	8.00	50.00	70.00
237:												
Ramo-----	4e	---	---	---	---	---	---	---	---	---	---	---
238:												
Ramo-----	3e	---	---	---	---	---	---	---	---	---	---	---
Conley-----	3w	---	---	---	---	---	---	---	---	---	---	---
239:												
Reavis-----	3c	3c	---	5.00	---	65.00	---	5.00	---	8.00	---	80.00
240:												
Redmount-----	3c	3c	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
241:												
Redmount-----	3e	3e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
242:												
Redmount-----	3c	3c	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
243:												
Redmount-----	3c	3c	---	---	---	---	---	5.00	---	8.00	---	---
Cheval-----	3w	3w	---	---	---	---	---	4.00	---	8.00	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
244: Riverwash-----	8	---	---	---	---	---	---	---	---	---	---	---
245: Rock outcrop, limestone-----	8	---	---	---	---	---	---	---	---	---	---	---
246: Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Fivebit-----	7e	---	---	---	---	---	---	---	---	---	---	---
247: Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	7e	---	---	---	---	---	---	---	---	---	---	---
248: Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	7e	---	---	---	---	---	---	---	---	---	---	---
249: Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	7e	---	---	---	---	---	---	---	---	---	---	---
Cherrycreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
250: Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7e	---	---	---	---	---	---	---	---	---	---	---
251: Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Dixiejett-----	7e	---	---	---	---	---	---	---	---	---	---	---
252: Rockly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
252: Copperfield-----	7e	---	---	---	---	---	---	---	---	---	---	---
253: Rockly-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Lickskillet-----	7e	---	---	---	---	---	---	---	---	---	---	---
254: Rondowa-----	3s	---	---	---	---	---	---	---	---	---	---	---
255: Rondowa-----	3s	---	---	---	---	---	---	---	---	---	---	---
256: Rondowa-----	4s	---	---	---	---	---	---	---	---	---	---	---
257: Rondowa-----	4s	---	---	---	---	---	---	---	---	---	---	---
258: Rondowa-----	6s	---	---	---	---	---	---	---	---	---	---	---
259: Rondowa-----	4s	---	---	---	---	---	---	---	---	---	---	---
260: Rondowa-----	6s	---	---	---	---	---	---	---	---	---	---	---
261: Rondowa-----	6s	---	---	---	---	---	---	---	---	---	---	---
262: Rondowa-----	6s	---	---	---	---	---	---	---	---	---	---	---
263: Rondowa-----	6s	---	---	---	---	---	---	---	---	---	---	---
264: Rondowa-----	6s	---	---	---	---	---	---	---	---	---	---	---
265: Rondowa-----	6s	---	---	---	---	---	---	---	---	---	---	---
266: Rubble land-----	8	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
267: Sag-----	4e	---	---	---	---	---	---	---	---	---	---	---
268: Sag-----	6e	---	---	---	---	---	---	---	---	---	---	---
269: Sag-----	7e	---	---	---	---	---	---	---	---	---	---	---
270: Schrier-----	2e	3e	---	5.00	---	75.00	---	5.00	---	8.00	---	80.00
271: Schrier-----	4e	---	---	---	---	---	---	---	---	---	---	---
Almota-----	4e	---	---	---	---	---	---	---	---	---	---	---
272: Schrier-----	6e	---	---	---	---	---	---	---	---	---	---	---
Almota-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
273: Schuelke-----	4e	---	---	---	---	---	---	---	---	---	---	---
Schrier-----	4e	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	7s	---	---	---	---	---	---	---	---	---	---	---
274: Silverlake-----	3c	3c	---	3.50	---	70.00	---	3.50	---	7.00	---	75.00
275: Slicklog-----	4e	---	---	---	---	---	---	---	---	---	---	---
276: Slicklog-----	6e	---	---	---	---	---	---	---	---	---	---	---
Eastpine-----	6s	---	---	---	---	---	---	---	---	---	---	---
277: Slicklog-----	7e	---	---	---	---	---	---	---	---	---	---	---
Eastpine-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
278: Slicklog-----	7e	---	---	---	---	---	---	---	---	---	---	---



Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
288:												
Snell-----	7s	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
289:												
Snow-----	2c	2c	---	80.00	---	8.00	---	5.00	---	70.00	---	5.00
290:												
Sopher-----	4e	---	---	---	---	---	---	---	---	---	---	---
291:												
Sopher-----	6e	---	---	---	---	---	---	---	---	---	---	---
292:												
Sopher-----	6e	---	---	---	---	---	---	---	---	---	---	---
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
293:												
Sopher-----	4e	---	---	---	---	---	---	---	---	---	---	---
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
294:												
Sopher-----	6e	---	---	---	---	---	---	---	---	---	---	---
Gwinly-----	7s	---	---	---	---	---	---	---	---	---	---	---
295:												
Sturgill-----	4w	4w	---	---	---	---	---	4.00	---	8.00	---	---
296:												
Sturgill-----	4w	4w	---	---	---	---	---	4.00	---	8.00	---	---
Eggleson-----	4s	4s	---	---	---	---	3.00	4.00	2.00	8.00	---	---
297:												
Sweitberg-----	4e	---	---	---	60.00	---	1.75	---	3.00	---	50.00	---
298:												
Sweitberg-----	4e	---	---	---	60.00	---	1.75	---	3.00	---	50.00	---
299:												
Sweiting-----	4e	---	---	---	---	---	---	---	---	---	---	---
300:												
Sweiting-----	4e	---	---	---	---	---	---	---	---	---	---	---



Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
301:												
Sweiting-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
302:												
Sweiting-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
303:												
Sweiting-----	4e	---	---	---	---	---	---	---	---	---	---	---
Klicker-----	4e	---	---	---	---	---	---	---	---	---	---	---
304:												
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
305:												
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	7s	---	---	---	---	---	---	---	---	---	---	---
306:												
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Lowerbluff-----	6e	---	---	---	---	---	---	---	---	---	---	---
307:												
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Tamara-----	6e	---	---	---	---	---	---	---	---	---	---	---
308:												
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
Tamara-----	6e	---	---	---	---	---	---	---	---	---	---	---
309:												
Tamara-----	6e	---	---	---	---	---	---	---	---	---	---	---
Sherod-----	6w	---	---	---	---	---	---	---	---	---	---	---
310:												
Tamara-----	6e	---	---	---	---	---	---	---	---	---	---	---
Syrupcreek-----	6e	---	---	---	---	---	---	---	---	---	---	---
311:												
Tamarackcanyon-----	7e	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	7e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
311: Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---
312: Tamarackcanyon----	4e	---	---	---	---	---	---	---	---	---	---	---
Lowerbluff-----	6e	---	---	---	---	---	---	---	---	---	---	---
313: Tamarackcanyon----	4e	---	---	---	---	---	---	---	---	---	---	---
Olot-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
314: Tamarackcanyon----	6e	---	---	---	---	---	---	---	---	---	---	---
Olot-----	6e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
315: Tannahill-----	7e	---	---	---	---	---	---	---	---	---	---	---
Schrier-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
316: Tannahill-----	6e	---	---	---	---	---	---	---	---	---	---	---
Schuelke-----	6e	---	---	---	---	---	---	---	---	---	---	---
Lickskillet-----	7s	---	---	---	---	---	---	---	---	---	---	---
317: Thiessen-----	6s	---	---	---	---	---	---	---	---	---	---	---
318: Threebuck-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
319: Threebuck-----	7e	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
320:												
Threebuck-----	4e	---	---	---	---	---	---	---	---	---	---	---
Tamarackcanyon----	4e	---	---	---	---	---	---	---	---	---	---	---
321:												
Threebuck-----	6e	---	---	---	---	---	---	---	---	---	---	---
Tamarackcanyon----	6e	---	---	---	---	---	---	---	---	---	---	---
322:												
Threebuck-----	6e	---	---	---	---	---	---	---	---	---	---	---
Tamarackcanyon----	6e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
323:												
Threebuck-----	7e	---	---	---	---	---	---	---	---	---	---	---
Tamarackcanyon----	7e	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	7e	---	---	---	---	---	---	---	---	---	---	---
324:												
Tippett-----	3c	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
325:												
Tippett-----	3c	---	---	---	---	---	---	---	---	---	---	---
Zumwalt-----	4e	---	---	---	---	---	---	---	---	---	---	---
326:												
Tolo-----	3e	---	---	---	---	---	---	---	---	---	---	---
327:												
Tolo-----	4e	---	---	---	---	---	---	---	---	---	---	---
328:												
Tolo, fan-----	4e	---	---	---	---	---	---	---	---	---	---	---
329:												
Tolo-----	4e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	4e	---	---	---	---	---	---	---	---	---	---	---
330:												
Tolo-----	6e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
331:												
Tolo-----	4e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	4e	---	---	---	---	---	---	---	---	---	---	---
332:												
Tolo-----	6e	---	---	---	---	---	---	---	---	---	---	---
Getaway-----	6e	---	---	---	---	---	---	---	---	---	---	---
333:												
Tolo-----	4e	---	---	---	---	---	---	---	---	---	---	---
Olot-----	4e	---	---	---	---	---	---	---	---	---	---	---
334:												
Tolo-----	4e	---	---	---	---	---	---	---	---	---	---	---
Olot-----	4e	---	---	---	---	---	---	---	---	---	---	---
335:												
Topper-----	3e	3e	2.00	---	30.00	---	2.00	---	3.00	---	30.00	---
336:												
Topper-----	3e	4e	2.00	---	30.00	---	2.00	---	3.00	---	30.00	---
337:												
Topper-----	4e	---	---	---	---	---	---	---	---	---	---	---
338:												
Topper-----	4e	---	---	---	---	---	---	---	---	---	---	---
339:												
Troutmeadows-----	6e	---	---	---	---	---	---	---	---	---	---	---
Crawfish-----	7s	---	---	---	---	---	---	---	---	---	---	---
340:												
Tuckerdowns-----	3e	---	---	---	55.00	---	2.00	---	3.00	---	60.00	---
341:												
Tuckerdowns-----	3e	---	---	---	55.00	---	2.00	---	3.00	---	60.00	---
342:												
Tuckerdowns-----	4e	---	---	---	55.00	---	2.00	---	3.00	---	60.00	---
343:												
Vandamine-----	6e	---	---	---	---	---	---	---	---	---	---	---
Bordengulch-----	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
344:												
Vandamine-----	7e	---	---	---	---	---	---	---	---	---	---	---
Bordengulch-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
345:												
Veazie-----	2w	2w	---	---	---	---	---	6.00	2.00	8.00	---	---
346:												
Voats-----	4s	4s	---	---	---	---	---	6.00	2.00	8.00	---	---
Veazie-----	3w	3w	---	---	---	---	---	6.00	2.00	8.00	---	---
347:												
Volstead-----	4e	---	---	---	---	---	---	---	---	---	---	---
Quirk-----	4e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
348:												
Volstead-----	4e	---	---	---	---	---	---	---	---	---	---	---
Quirk-----	4e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
349:												
Wallowa-----	4e	---	---	---	---	---	---	---	---	---	---	---
Bocker-----	7s	---	---	---	---	---	---	---	---	---	---	---
350:												
Watama-----	4e	---	1.00	---	30.00	---	1.00	---	2.00	---	35.00	---
351:												
Watama-----	4e	---	---	---	55.00	---	2.00	---	3.00	---	60.00	---
352:												
Watama-----	4e	---	---	---	55.00	---	2.00	---	3.00	---	60.00	---
Rockly-----	7s	---	---	---	---	---	---	---	---	---	---	---
353:												
Water-----	---	---	---	---	---	---	---	---	---	---	---	---
354:												
Wilkins-----	3w	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Barley		Grass-legume hay		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Tons	Tons	AUM	AUM	Bu	Bu
355:												
Wilkins-----	3w	---	---	---	---	---	---	---	---	---	---	---
Feaginranch-----	4w	---	---	---	---	---	---	---	---	---	---	---
356:												
Wolot-----	3e	---	---	---	---	---	---	---	---	---	---	---
357:												
Zumwalt-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
358:												
Zumwalt-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---
359:												
Zumwalt-----	4e	---	---	---	---	---	---	---	---	---	---	---
Harlow-----	7s	---	---	---	---	---	---	---	---	---	---	---

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Too acid	1.00 0.43 0.06 0.03	Very limited Slow water movement Depth to saturated zone Too acid Strongly contrasting textural stratification	1.00 0.43 0.14 0.06
2: Akerite-----	85	Very limited Slow water movement Slope Depth to saturated zone Strongly contrasting textural stratification Too acid	1.00 0.63 0.43 0.06 0.03	Very limited Slow water movement Slope Depth to saturated zone Too acid Strongly contrasting textural stratification	1.00 0.63 0.43 0.14 0.06
3: Albee-----	45	Somewhat limited Slope Depth to bedrock	0.04 0.01	Very limited Low adsorption Slope Depth to bedrock	1.00 0.04 0.01
Anatone-----	40	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
4: Albee-----	50	Somewhat limited Slope Depth to bedrock	0.04 0.01	Very limited Low adsorption Slope Depth to bedrock	1.00 0.04 0.01
Bocker-----	40	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
5: Analulu-----	30	Very limited Slope Droughty Depth to bedrock Too acid	1.00 1.00 0.35 0.01	Very limited Droughty Low adsorption Slope Depth to bedrock Too acid	1.00 1.00 1.00 0.35 0.03
Slicklog-----	30	Very limited Slope Too acid	1.00 0.03	Very limited Slope Too acid	1.00 0.14
Bluecanyon-----	30	Very limited Slope Depth to bedrock Droughty Runoff	1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope	1.00 1.00 1.00 1.00
6: Analulu-----	40	Very limited Slope Droughty Depth to bedrock Too acid	1.00 1.00 0.35 0.01	Very limited Droughty Low adsorption Slope Depth to bedrock Too acid	1.00 1.00 1.00 0.35 0.03
Slicklog-----	35	Very limited Slope Too acid	1.00 0.03	Very limited Slope Too acid	1.00 0.14
Rock outcrop-----	10	Not rated		Not rated	
7: Anatone-----	50	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Bocker-----	35	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04
8: Anatone-----	50	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Bocker-----	35	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
9: Anatone-----	50	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	 1.00 1.00 1.00 1.00 1.00
Bocker-----	35	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	 1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	 1.00 1.00 1.00 1.00 1.00
10: Anatone-----	35	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	 1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	 1.00 1.00 1.00 1.00 0.50
Bocker-----	30	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	 1.00 1.00 1.00 0.40 0.01	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	 1.00 1.00 1.00 1.00 0.01
Fivebit-----	20	Very limited Depth to bedrock Droughty Slow water movement Runoff Slope	 1.00 1.00 0.43 0.40 0.01	Very limited Droughty Depth to bedrock Low adsorption Slow water movement Slope	 1.00 1.00 1.00 0.32 0.01
11: Anatone-----	40	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	 1.00 1.00 1.00 1.00 1.00
Bocker-----	25	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	 1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	 1.00 1.00 1.00 1.00 1.00
Fivebit-----	20	Very limited Slope Depth to bedrock Droughty Slow water movement Runoff	 1.00 1.00 1.00 0.43 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	 1.00 1.00 1.00 1.00 0.32

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
12: Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Cherrycreek-----	30	Very limited Slope Cobble content Large stones on the surface Droughty	1.00 0.87 0.50 0.01	Very limited Low adsorption Slope Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.01
Imnaha-----	20	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
13: Anatone-----	40	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Imnaha-----	35	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Rock outcrop-----	10	Not rated		Not rated	
14: Anatone-----	45	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Kamela-----	40	Very limited Slope Droughty Depth to bedrock	1.00 1.00 0.97	Very limited Low adsorption Slope Droughty Depth to bedrock	1.00 1.00 1.00 0.97
15: Anatone-----	50	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
15: Klicker-----	30	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
Rock outcrop-----	10	Not rated		Not rated	
16: Anatone-----	50	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Linecreek-----	25	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
17: Anatone-----	50	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Olot-----	35	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00 0.31 0.06
18: Anatone-----	45	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
18: Clearline-----	15	Very limited Slope Filtering capacity	1.00 0.01	Very limited Low adsorption Slope Filtering capacity	1.00 1.00 0.01
19: Anatone-----	40	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Fivebit-----	20	Very limited Slope Depth to bedrock Droughty Slow water movement Runoff	1.00 1.00 1.00 0.43 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 0.32
20: Anatone-----	40	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
21: Balm-----	50	Very limited Depth to saturated zone Filtering capacity Strongly contrasting textural stratification Runoff Droughty	1.00 0.99 0.71 0.40 0.02	Very limited Depth to saturated zone Filtering capacity Strongly contrasting textural stratification Flooding Droughty	1.00 0.99 0.71 0.40 0.02
Catherine-----	40	Very limited Depth to saturated zone Flooding	1.00 0.60	Very limited Depth to saturated zone Flooding	1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
22: Bittercreek-----	65	Very limited Depth to saturated zone Strongly contrasting textural stratification Dense layer Filtering capacity Runoff	1.00 1.00 1.00 0.99 0.40	Very limited Depth to saturated zone Strongly contrasting textural stratification Filtering capacity Flooding Droughty	1.00 1.00 0.99 0.40 0.04
Mippon-----	20	Very limited Strongly contrasting textural stratification Filtering capacity Droughty	1.00 0.99 0.99	Very limited Strongly contrasting textural stratification Filtering capacity Droughty Flooding	1.00 0.99 0.99 0.40
23: Bocker-----	85	Very limited Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content	1.00 1.00 1.00 1.00
24: Bocker-----	60	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04
Anatone-----	15	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
25: Bocker-----	60	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
Anatone-----	15	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
26: Bocker-----	50	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00 1.00
Clearline-----	20	Very limited Slope Filtering capacity	1.00 0.01	Very limited Low adsorption Slope Filtering capacity	1.00 1.00 0.01
Rock outcrop-----	20	Not rated		Not rated	
27: Bocker-----	40	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00 1.00
Imnaha-----	30	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Rock outcrop-----	15	Not rated		Not rated	
28: Bridgewater-----	90	Very limited Filtering capacity Large stones on the surface Large stones content Cobble content Droughty	1.00 1.00 1.00 1.00 1.00 0.99	Very limited Filtering capacity Flooding Large stones on the surface Cobble content Droughty	1.00 1.00 1.00 1.00 1.00 0.99
29: Btree-----	45	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 0.97 0.11	Very limited Low adsorption Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.97 0.42
Flycreek-----	40	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid Depth to bedrock	1.00 1.00 1.00 0.11 0.10	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 1.00 0.42



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
30: Btree-----	45	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 0.97 0.11	Very limited Low adsorption Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.97 0.42
Flycreek-----	40	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid Depth to bedrock	1.00 1.00 1.00 0.11 0.10	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.42
31: Btree-----	30	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 0.97 0.11	Very limited Low adsorption Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.97 0.42
Flycreek-----	30	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid Depth to bedrock	1.00 1.00 1.00 0.11 0.10	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.42
Anatone-----	30	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
32: Btree-----	30	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 0.97 0.11	Very limited Low adsorption Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.97 0.42

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
32: Flycreek-----	30	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid Depth to bedrock	1.00 1.00 1.00 0.11 0.10	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.42
Anatone-----	30	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
33: Btree-----	40	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 0.97 0.11	Very limited Low adsorption Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.97 0.42
Klicker-----	30	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
34: Bucketlake-----	85	Very limited Slope Too acid Droughty	1.00 0.27 0.01	Very limited Slope Too acid Droughty	1.00 0.85 0.01
35: Bucketlake-----	85	Very limited Slope Too acid Droughty	1.00 0.27 0.01	Very limited Slope Too acid Droughty	1.00 0.85 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
36: Buford-----	45	Very limited Slow water movement Slope	1.00  0.04	Very limited Low adsorption Slow water movement Slope	1.00  1.00  0.04
Anatone-----	40	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
37: Buford-----	45	Very limited Slow water movement Slope	1.00  0.04	Very limited Low adsorption Slow water movement Slope	1.00  1.00  0.04
Bocker-----	40	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04
38: Bunchpoint-----	85	Somewhat limited Depth to bedrock Too acid Slope	0.29 0.11 0.01	Very limited Low adsorption Too acid Depth to bedrock Slope	1.00 0.42 0.29 0.01
39: Bunchpoint-----	45	Somewhat limited Depth to bedrock Too acid Slope	0.29 0.11 0.01	Very limited Low adsorption Too acid Depth to bedrock Slope	1.00 0.42 0.29 0.01
Bocker-----	40	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.01	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.01
40: Chard-----	90	Very limited Slope	1.00	Very limited Slope	1.00
41: Cherrycreek-----	50	Somewhat limited Cobble content Large stones on the surface Slope Droughty	0.87 0.50 0.04 0.01	Very limited Low adsorption Cobble content Large stones on the surface Slope Droughty	1.00 0.87 0.50 0.04 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
41: Imnaha-----	35	Somewhat limited Depth to bedrock Droughty Slope	0.90 0.39 0.04	Very limited Low adsorption Depth to bedrock Droughty Slope	1.00 0.90 0.39 0.04
42: Cherrycreek-----	50	Very limited Slope Cobble content Large stones on the surface Droughty	1.00 0.87 0.50 0.01	Very limited Low adsorption Slope Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.01
Imnaha-----	20	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Imnaha, moist-----	15	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
43: Cherrycreek-----	40	Very limited Slope Cobble content Large stones on the surface Droughty	1.00 0.87 0.50 0.01	Very limited Low adsorption Slope Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.01
Imnaha-----	35	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Rock outcrop-----	10	Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Cobble content Large stones on the surface Droughty	1.00 0.87 0.50 0.01	Very limited Low adsorption Slope Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.01
Limberjim-----	35	Very limited Slope	1.00	Very limited Low adsorption Slope	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
45: Chesnimnus-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.31

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
46: Chesnimnus-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.31
47: Cheval-----	85	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Depth to saturated zone	0.99	Flooding	1.00
		Flooding	0.60	Depth to saturated zone	0.99
		Strongly contrasting textural stratification	0.35	Strongly contrasting textural stratification	0.35
48: Cloverland-----	90	Very limited Slow water movement	1.00	Very limited Slow water movement	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
49: Cloverland-----	90	Very limited Slow water movement	1.00	Very limited Slow water movement	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Slope	0.63	Slope	0.63
50: Conley-----	90	Very limited Slow water movement	1.00	Very limited Slow water movement	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Strongly contrasting textural stratification	0.95	Strongly contrasting textural stratification	0.95
51: Conley-----	90	Very limited Slow water movement	1.00	Very limited Slow water movement	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Strongly contrasting textural stratification	0.95	Strongly contrasting textural stratification	0.95
52: Copperfield-----	50	Very limited Slope	1.00	Very limited Slope	1.00
		Slow water movement	1.00	Slow water movement	1.00
		Cobble content	0.87	Cobble content	0.87
		Large stones on the surface	0.50	Large stones on the surface	0.50
		Droughty	0.04	Droughty	0.04

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
52: Thiessen-----	35	Very limited Slope Slow water movement Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 0.87 0.16	Very limited Low adsorption Slope Slow water movement Droughty Cobble content	1.00 1.00 1.00 1.00 0.87
53: Copperfield-----	40	Very limited Slope Slow water movement Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.04	Very limited Slope Slow water movement Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.04
Thiessen-----	30	Very limited Slope Slow water movement Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 0.87 0.16	Very limited Low adsorption Slope Slow water movement Droughty Cobble content	1.00 1.00 1.00 1.00 0.87
Rock outcrop-----	15	Not rated		Not rated	
54: Cowsly-----	90	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Too acid	1.00 0.99 0.95 0.01	Very limited Slow water movement Low adsorption Depth to saturated zone Strongly contrasting textural stratification Too acid	1.00 1.00 0.99 0.95 0.01
55: Cowsly-----	90	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope Too acid	1.00 0.99 0.95 0.63 0.01	Very limited Slow water movement Low adsorption Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 1.00 0.99 0.95 0.63
56: Cowsly-----	85	Very limited Slow water movement Large stones on the surface Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 0.99 0.99 0.95 0.04	Very limited Slow water movement Low adsorption Large stones on the surface Depth to saturated zone Strongly contrasting textural stratification	1.00 1.00 0.99 0.99 0.95

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
57: Cowsly, cobbly-----	60	Very limited Slope Slow water movement Depth to saturated zone Strongly contrasting textural stratification	1.00 1.00 0.99 0.95	Very limited Slow water movement Low adsorption Slope Depth to saturated zone Strongly contrasting textural stratification	1.00 1.00 1.00 0.99 0.95
Cowsly-----	25	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 0.99 0.95 0.04	Very limited Slow water movement Low adsorption Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 1.00 0.99 0.95 0.04
58: Cowsly, cobbly-----	60	Very limited Slope Slow water movement Depth to saturated zone Strongly contrasting textural stratification	1.00 1.00 0.99 0.95	Very limited Slow water movement Low adsorption Slope Depth to saturated zone Strongly contrasting textural stratification	1.00 1.00 1.00 0.99 0.95
Cowsly-----	25	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 0.99 0.95 0.04	Very limited Slow water movement Low adsorption Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 1.00 0.99 0.95 0.04
59: Cowsly-----	60	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope Too acid	1.00 0.99 0.95 0.04 0.01	Very limited Slow water movement Low adsorption Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 1.00 0.99 0.95 0.04



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
59: Howmeadows-----	15	Very limited Slow water movement Depth to saturated zone Droughty Depth to bedrock Runoff	1.00 1.00 0.87 0.80 0.40	Very limited Slow water movement Depth to saturated zone Low adsorption Droughty Depth to bedrock	1.00 1.00 1.00 0.87 0.80
Sherod-----	15	Very limited Slow water movement Depth to saturated zone Depth to bedrock Droughty	1.00 1.00 1.00 0.99	Very limited Depth to saturated zone Depth to bedrock Low adsorption Slow water movement Droughty	1.00 1.00 1.00 1.00 0.99
60: Demasters-----	50	Very limited Slope	1.00	Very limited Low adsorption Slope	1.00 1.00
Snell-----	35	Very limited Slope Droughty Large stones on the surface Depth to bedrock Slow water movement	1.00 1.00 0.99 0.90 0.41	Very limited Low adsorption Slope Droughty Large stones on the surface Depth to bedrock	1.00 1.00 1.00 0.99 0.90
61: Dixiejett-----	35	Very limited Slope Droughty Slow water movement	1.00 0.95 0.41	Very limited Low adsorption Slope Droughty Slow water movement	1.00 1.00 0.95 0.31
Lickskillet-----	30	Very limited Slope Depth to bedrock Droughty Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00
Rockly-----	20	Very limited Slope Depth to bedrock Droughty Cobble content Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00
62: Doublecreek-----	40	Very limited Slope	1.00	Very limited Slope	1.00
Flybow-----	30	Very limited Slope Depth to bedrock Droughty Runoff	1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope	1.00 1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
63: Doublecreek-----	55	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Langrell-----	30	Somewhat limited Droughty	0.15	Somewhat limited Droughty	0.15
64: Doublecreek-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Phys-----	40	Somewhat limited Slow water movement Slope Too acid	0.41 0.04 0.01	Somewhat limited Slow water movement Slope Too acid	0.31 0.04 0.03
65: Downards-----	45	Very limited Slope Slow water movement	1.00 0.30	Very limited Slope Slow water movement	1.00 0.22
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
66: Downards-----	50	Very limited Slope Slow water movement	1.00 0.30	Very limited Slope Slow water movement	1.00 0.22
Emily-----	20	Very limited Slope Cobble content Droughty	1.00 0.50 0.01	Very limited Slope Cobble content Droughty	1.00 0.50 0.01
Sopher-----	20	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
67: Downards-----	60	Very limited Slope Slow water movement Droughty	1.00 0.30 0.03	Very limited Low adsorption Slope Slow water movement Droughty	1.00 1.00 0.22 0.03

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
67: Klicker-----	25	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
68: Downards-----	60	Very limited Slope Slow water movement Droughty	1.00 0.30 0.03	Very limited Low adsorption Slope Slow water movement Droughty	1.00 1.00 0.22 0.03
Klicker-----	25	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
69: Downeygulch-----	50	Somewhat limited Depth to bedrock Droughty Too acid Slope	0.90 0.15 0.11 0.01	Very limited Low adsorption Depth to bedrock Too acid Droughty Slope	1.00 0.90 0.42 0.15 0.01
Lowerbluff-----	35	Very limited Depth to bedrock Droughty Runoff Too acid Slope	1.00 0.70 0.40 0.11 0.01	Very limited Depth to bedrock Low adsorption Droughty Too acid Slope	1.00 1.00 0.70 0.42 0.01
70: Downeygulch-----	55	Very limited Slope Depth to bedrock Droughty Too acid	1.00 0.90 0.15 0.11	Very limited Low adsorption Slope Depth to bedrock Too acid Droughty	1.00 1.00 0.90 0.42 0.15
Thirstygulch-----	30	Very limited Slope Depth to bedrock Large stones on the surface Droughty Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slope	1.00 1.00 1.00 1.00 1.00
71: Eggleson-----	85	Very limited Filtering capacity Droughty Depth to saturated zone	0.99 0.99 0.86	Very limited Filtering capacity Droughty Depth to saturated zone Flooding	0.99 0.99 0.86 0.40

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
72: Emily-----	55	Very limited Slope Cobble content Droughty	1.00 0.50 0.01	Very limited Slope Cobble content Droughty	1.00 0.50 0.01
Wolot-----	30	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99 0.41	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99 0.31
73: Endoaquolls, mesic--	85	Very limited Depth to saturated zone Runoff Droughty	1.00 0.40 0.05	Very limited Depth to saturated zone Droughty	1.00 0.05
74: Ferguson-----	85	Very limited Filtering capacity Slope	0.99 0.04	Very limited Filtering capacity Slope	0.99 0.04
75: Ferguson-----	85	Very limited Slope Filtering capacity	1.00 0.99	Very limited Slope Filtering capacity	1.00 0.99
76: Ferguson-----	85	Very limited Slope Filtering capacity	1.00 0.99	Very limited Slope Filtering capacity	1.00 0.99
77: Ferguson-----	85	Very limited Slope Filtering capacity	1.00 0.99	Very limited Slope Filtering capacity	1.00 0.99
78: Ferguson-----	85	Very limited Slope Filtering capacity	1.00 0.99	Very limited Slope Filtering capacity	1.00 0.99
79: Flybow-----	40	Very limited Slope Depth to bedrock Droughty Runoff	1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope	1.00 1.00 1.00 1.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
80: Flybow-----	40	Very limited Slope Depth to bedrock Droughty Runoff	 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope	 1.00 1.00 1.00 1.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
81: Flycreek-----	65	Very limited Slow water movement Strongly contrasting textural stratification Too acid Depth to bedrock Slope	 1.00  1.00   0.11 0.10 0.04	Very limited Low adsorption Strongly contrasting textural stratification Slow water movement Too acid Depth to bedrock	 1.00 1.00    1.00  0.42 0.10
Flyvalley-----	20	Very limited Depth to bedrock Too acid Slope Droughty	 1.00 0.18 0.04 0.01	Very limited Depth to bedrock Low adsorption Too acid Slope	 1.00 1.00 0.67 0.04
82: Freels-----	85	Not limited		Somewhat limited Flooding	0.40
83: Geisercreek-----	85	Very limited Slope Slow water movement Strongly contrasting textural stratification	 1.00 1.00  0.95   	Very limited Slope Slow water movement Strongly contrasting textural stratification	 1.00 1.00  0.95   
84: Gelsinger-----	85	Very limited Slow water movement	 1.00	Very limited Slow water movement	1.00
85: Gelsinger-----	85	Very limited Slow water movement Slope	 1.00 0.63	Very limited Slow water movement Slope	 1.00 0.63
86: Getaway-----	85	Very limited Slope Slow water movement	 1.00 0.30	Very limited Low adsorption Slope Slow water movement	 1.00 1.00 0.22
87: Getaway-----	85	Very limited Slope Slow water movement	 1.00 0.30	Very limited Low adsorption Slope Slow water movement	 1.00 1.00 0.22

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
88: Getaway-----	45	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
Anatone-----	30	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
89: Getaway-----	50	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
90: Getaway-----	50	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
91: Getaway-----	40	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
Harlow-----	30	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
92: Getaway-----	35	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
Linecreek-----	30	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
93: Getaway-----	50	Very limited Slope Large stones on the surface Slow water movement	1.00 0.99 0.30	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 0.99 0.22
Snell-----	35	Very limited Slope Droughty Large stones on the surface Depth to bedrock Slow water movement	1.00 1.00 0.99 0.90 0.41	Very limited Low adsorption Slope Droughty Large stones on the surface Depth to bedrock	1.00 1.00 1.00 0.99 0.90
94: Gwin-----	55	Very limited Slope Depth to bedrock Droughty Large stones on the surface Slow water movement	1.00 1.00 1.00 0.50 0.41	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 0.50
Kettenbach-----	20	Very limited Slope Droughty Cobble content Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Rock outcrop-----	10	Not rated		Not rated	



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
95: Gwin-----	55	Very limited Slope Depth to bedrock Droughty Large stones on the surface Slow water movement	1.00 1.00 1.00 0.50 0.41	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 0.50
Kettenbach-----	20	Very limited Slope Droughty Cobble content Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Rock outcrop-----	10	Not rated		Not rated	
96: Gwin-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Slow water movement	1.00 1.00 1.00 0.50 0.41	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 0.50
Klickson-----	30	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Kettenbach-----	20	Very limited Slope Droughty Cobble content Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 1.00 0.90
97: Gwinly-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00
Kettenbach-----	35	Very limited Slope Droughty Cobble content Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Rock outcrop-----	10	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
98: Gwinly-----	40	Very limited Slow water movement Depth to bedrock Droughty Cobble content Slope	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slow water movement Cobble content	1.00 1.00 1.00 1.00 1.00 1.00
Mallory-----	35	Very limited Slow water movement Large stones on the surface Droughty Slope Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Large stones on the surface Droughty Slow water movement Slope	1.00 1.00 1.00 1.00 1.00 1.00
99: Gwinly-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Mallory-----	35	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
100: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Kettenbach-----	25	Very limited Slope Droughty Cobble content Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 1.00 0.90

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
101: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Kettenbach-----	25	Very limited Slope Droughty Cobble content Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.90
102: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Kettenbach-----	25	Very limited Slope Droughty Cobble content Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.90
103: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
103: Mallory-----	25	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	 1.00 1.00  1.00  1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	 1.00 1.00 1.00  1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
104: Gwinly-----	50	Very limited Slow water movement Depth to bedrock Droughty Cobble content Runoff	 1.00  1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slow water movement Cobble content	 1.00 1.00 1.00 1.00 1.00
Rockly-----	35	Very limited Depth to bedrock Droughty Cobble content Runoff Slope	 1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	 1.00 1.00 1.00 1.00 0.04
105: Gwinly-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	 1.00 1.00  1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	 1.00 1.00 1.00 1.00 1.00
Rockly-----	25	Very limited Slope Depth to bedrock Droughty Cobble content Runoff	 1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	 1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
106: Gwinly-----	60	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	 1.00 1.00  1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	 1.00 1.00 1.00 1.00 1.00
Sopher-----	25	Very limited Slope Slow water movement Large stones on the surface	 1.00 1.00  1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
107: Gwinly-----	55	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00 1.00
Sopher-----	25	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
108: Hapludolls, frigid--	35	Somewhat limited Depth to saturated zone	0.86	Somewhat limited Depth to saturated zone Flooding	0.86 0.40
Endoaquolls, frigid	30	Very limited Depth to saturated zone Flooding Runoff	1.00 0.60 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00
Endoaquents, frigid	20	Very limited Depth to saturated zone Flooding Runoff	1.00 0.60 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00
109: Harl-----	40	Very limited Slope Too acid	1.00 0.05	Very limited Slope Too acid	1.00 0.21
Anatone-----	30	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
110: Harl-----	45	Very limited Slope Too acid	1.00 0.05	Very limited Slope Too acid	1.00 0.21
Anatone-----	30	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
111: Harl-----	45	Very limited Slope Too acid	1.00 0.05	Very limited Slope Too acid	1.00 0.21
Getaway-----	40	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
112: Harl-----	50	Very limited Slope Too acid	1.00 0.05	Very limited Slope Too acid	1.00 0.21
Limberjim-----	25	Very limited Slope	1.00	Very limited Low adsorption Slope	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
113: Harlow-----	60	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
Bocker-----	25	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04
114: Harlow-----	60	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Bocker-----	25	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
115: Harlow-----	45	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
115: Bocker-----	40	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
116: Harlow-----	50	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
Bocker-----	35	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04
117: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Bocker-----	30	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
118: Harlow-----	40	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
Imnaha-----	35	Somewhat limited Depth to bedrock Droughty Slope	0.90 0.39 0.04	Very limited Low adsorption Depth to bedrock Droughty Slope	1.00 0.90 0.39 0.04
Rock outcrop-----	10	Not rated		Not rated	



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
119: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Imnaha-----	35	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Rock outcrop-----	10	Not rated		Not rated	
120: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Imnaha-----	35	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Rock outcrop-----	10	Not rated		Not rated	
121: Harlow-----	50	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Klicker-----	35	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
122: Harlow-----	50	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
122: Klicker-----	35	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
123: Harlow-----	35	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
Snell-----	25	Very limited Large stones on the surface Droughty Depth to bedrock Large stones content Slow water movement	1.00 1.00 0.90 0.53 0.41	Very limited Low adsorption Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.31
Imnaha-----	25	Somewhat limited Depth to bedrock Droughty Slope	0.90 0.39 0.04	Very limited Low adsorption Depth to bedrock Droughty Slope	1.00 0.90 0.39 0.04
124: Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Snell-----	25	Very limited Slope Large stones on the surface Droughty Depth to bedrock Large stones content	1.00 1.00 1.00 0.90 0.53	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Imnaha-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
125: Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00 1.00
Snell-----	25	Very limited Slope Large stones on the surface Droughty Depth to bedrock Large stones content	1.00 1.00 1.00 0.90 0.53	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Imnaha-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
126: Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00 1.00
Snell-----	25	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Rock outcrop-----	25	Not rated		Not rated	
127: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Tamarackcanyon-----	25	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
127: Linecreek-----	20	Very limited Slope Cobble content Filtering capacity Leaching	1.00 1.00 0.99 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
128: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Tamarackcanyon-----	25	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
Olot-----	20	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00 0.31 0.06
129: Harlow-----	50	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Threebuck-----	35	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.03	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.14

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
130: Hershal-----	85	Very limited Filtering capacity Depth to saturated zone Strongly contrasting textural stratification Flooding Runoff	1.00  1.00  0.90  0.60 0.40	Very limited Filtering capacity Depth to saturated zone Flooding Strongly contrasting textural stratification Droughty	1.00  1.00  1.00 0.90   0.01
131: Hershal-----	50	Very limited Filtering capacity Depth to saturated zone Strongly contrasting textural stratification Flooding Runoff	1.00  1.00  0.90  0.60 0.40	Very limited Filtering capacity Depth to saturated zone Flooding Strongly contrasting textural stratification Droughty	1.00  1.00  1.00 0.90   0.01
Voats-----	35	Very limited Filtering capacity Strongly contrasting textural stratification Flooding Droughty	1.00  1.00   0.60 0.56	Very limited Filtering capacity Flooding Strongly contrasting textural stratification Droughty	1.00  1.00 1.00   0.56
132: Hershal-----	35	Very limited Filtering capacity Depth to saturated zone Strongly contrasting textural stratification Flooding Runoff	1.00  1.00  0.90  0.60 0.40	Very limited Filtering capacity Depth to saturated zone Flooding Strongly contrasting textural stratification Droughty	1.00  1.00  1.00 0.90   0.01
Voats-----	30	Very limited Filtering capacity Strongly contrasting textural stratification Flooding Droughty	1.00  1.00   0.60 0.56	Very limited Filtering capacity Flooding Strongly contrasting textural stratification Droughty	1.00  1.00 1.00   0.56
Veazie-----	20	Very limited Filtering capacity Strongly contrasting textural stratification Flooding	1.00  0.64   0.60	Very limited Filtering capacity Flooding Strongly contrasting textural stratification	1.00  1.00 0.64

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
133: Howmeadows-----	50	Very limited Slow water movement Depth to saturated zone Droughty Depth to bedrock Runoff	1.00 1.00 0.87 0.80 0.40	Very limited Slow water movement Depth to saturated zone Low adsorption Droughty Depth to bedrock	1.00 1.00 1.00 0.87 0.80
Wilkins-----	35	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Runoff	1.00 1.00 0.84 0.40	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification	1.00 1.00 0.84
134: Hurwal-----	90	Somewhat limited Slow water movement Too acid	0.41 0.01	Somewhat limited Slow water movement Too acid	0.31 0.03
135: Hurwal-----	90	Somewhat limited Slope Slow water movement Too acid	0.63 0.41 0.01	Somewhat limited Slope Slow water movement Too acid	0.63 0.31 0.03
136: Hurwal, deep-----	85	Very limited Slope Slow water movement	1.00 0.41	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.31
137: Hurwal, deep-----	85	Very limited Slope Slow water movement	1.00 0.41	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.31
138: Hurwal-----	90	Somewhat limited Slow water movement Too acid	0.41 0.01	Somewhat limited Slow water movement Too acid	0.31 0.03
139: Hurwal-----	90	Somewhat limited Slope Slow water movement Too acid	0.63 0.41 0.01	Somewhat limited Slope Slow water movement Too acid	0.63 0.31 0.03
140: Hurwal-----	90	Very limited Slope Slow water movement Too acid	1.00 0.41 0.01	Very limited Slope Slow water movement Too acid	1.00 0.31 0.03

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
141: Imnaha-----	55	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
142: Imnaha-----	35	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Imhaha, moist-----	30	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
143: Imnaha-----	40	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Bocker-----	25	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
Clearline-----	20	Very limited Slope Filtering capacity	1.00 0.01	Very limited Low adsorption Slope Filtering capacity	1.00 1.00 0.01
144: Imnaha-----	45	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
144: Cherrycreek-----	30	Very limited Slope Cobble content Large stones on the surface Droughty	1.00 0.87 0.50 0.01	Very limited Low adsorption Slope Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.01
Anatone-----	15	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
145: Imnaha-----	40	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Clearline-----	30	Very limited Slope Filtering capacity	1.00 0.01	Very limited Low adsorption Slope Filtering capacity	1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Not rated	
146: Imnaha-----	45	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Rock outcrop-----	25	Not rated		Not rated	
Cherrycreek-----	20	Very limited Slope Cobble content Large stones on the surface Droughty	1.00 0.87 0.50 0.01	Very limited Low adsorption Slope Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.01
147: Josset-----	85	Very limited Filtering capacity Strongly contrasting textural stratification Flooding Depth to saturated zone Droughty	1.00 0.97 0.60 0.43 0.13	Very limited Filtering capacity Flooding Strongly contrasting textural stratification Depth to saturated zone Droughty	1.00 1.00 0.97 0.43 0.13

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
148: Kahler-----	50	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
149: Kahler-----	40	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
150: Kahler-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Linecreek-----	30	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
Getaway-----	20	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
151: Kahler-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Linecreek-----	35	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
151: Getaway-----	15	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
152: Klicker-----	85	Very limited Large stones on the surface Droughty Depth to bedrock Slow water movement Slope	0.99 0.99 0.90 0.41 0.04	Very limited Low adsorption Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.31
153: Klicker-----	85	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
154: Klicker-----	85	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
155: Klicker-----	85	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
156: Klicker-----	85	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
157: Klicker-----	50	Very limited Large stones on the surface Droughty Depth to bedrock Slow water movement Slope	0.99 0.99 0.90 0.41 0.04	Very limited Low adsorption Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.31

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
157: Anatone-----	35	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
158: Klicker-----	50	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
159: Klicker-----	50	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
160: Klicker-----	35	Very limited Large stones on the surface Droughty Depth to bedrock Slow water movement Slope	0.99 0.99 0.90 0.41 0.01	Very limited Low adsorption Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.31
Fivebit-----	30	Very limited Depth to bedrock Droughty Slow water movement Runoff Slope	1.00 1.00 0.43 0.40 0.01	Very limited Droughty Depth to bedrock Low adsorption Slow water movement Slope	1.00 1.00 1.00 0.32 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
160: Anatone-----	20	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
161: Klicker-----	35	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
Fivebit-----	30	Very limited Slope Depth to bedrock Droughty Slow water movement Runoff	1.00 1.00 1.00 0.43 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 0.32
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
162: Klicker-----	50	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
163: Klicker-----	40	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
163: Kamela-----	30	Very limited Slope Droughty Depth to bedrock	1.00 1.00 0.97	Very limited Low adsorption Slope Droughty Depth to bedrock	1.00 1.00 1.00 0.97
Fivebit-----	15	Very limited Slope Depth to bedrock Droughty Slow water movement Runoff	1.00 1.00 1.00 0.43 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 0.32
164: Klicker-----	55	Very limited Slope Droughty Depth to bedrock Slow water movement Too acid	1.00 0.99 0.90 0.41 0.01	Very limited Low adsorption Slope Droughty Depth to bedrock Slow water movement	1.00 1.00 0.99 0.90 0.31
Olot-----	30	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00 0.31 0.06
165: Klicker-----	35	Very limited Slope Droughty Depth to bedrock Slow water movement Too acid	1.00 0.99 0.90 0.41 0.01	Very limited Low adsorption Slope Droughty Depth to bedrock Slow water movement	1.00 1.00 0.99 0.90 0.31
Thirstygulch-----	30	Very limited Slope Depth to bedrock Large stones on the surface Droughty Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slope	1.00 1.00 1.00 1.00 1.00
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
166: Klicker-----	35	Very limited Slope Droughty Depth to bedrock Slow water movement Too acid	1.00 0.99 0.90 0.41 0.01	Very limited Low adsorption Slope Droughty Depth to bedrock Slow water movement	1.00 1.00 0.99 0.90 0.31
Thirstygulch-----	30	Very limited Slope Depth to bedrock Large stones on the surface Droughty Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slope	1.00 1.00 1.00 1.00 1.00
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
167: Klicker-----	40	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
Rock outcrop-----	25	Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
168: Klickson-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Anatone-----	25	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
168: Larabee-----	25	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
169: Klickson-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Anatone-----	25	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Larabee-----	25	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
170: Klickson-----	60	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Larabee-----	25	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
171: Klickson-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Larabee-----	30	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
Volstead-----	20	Very limited Slope Slow water movement	1.00 0.41	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.31

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
172: Langrell-----	85	Somewhat limited Droughty	0.15	Somewhat limited Droughty	0.15
173: Langrell-----	50	Somewhat limited Droughty	0.15	Somewhat limited Droughty	0.15
Snow-----	35	Not limited		Not limited	
174: Larabee-----	35	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
Getaway-----	30	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
Klickson-----	20	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
175: Larabee-----	35	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
Klickson-----	30	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31
Volstead-----	20	Very limited Slope Slow water movement	1.00 0.41	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.31
176: Larabee-----	35	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
Klickson-----	30	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.31

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
176: Volstead-----	20	Very limited Slope Slow water movement	1.00 0.41	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.31
177: Larabee-----	45	Somewhat limited Slow water movement Droughty Depth to bedrock Slope	0.41 0.15 0.06 0.01	Very limited Low adsorption Slow water movement Droughty Depth to bedrock Slope	1.00 0.31 0.15 0.06 0.01
Melhorn-----	40	Somewhat limited Slow water movement Slope	0.41 0.01	Somewhat limited Slow water movement Slope	0.31 0.01
178: Larabee-----	45	Very limited Slope Slow water movement Droughty Depth to bedrock	1.00 0.41 0.15 0.06	Very limited Low adsorption Slope Slow water movement Droughty Depth to bedrock	1.00 1.00 0.31 0.15 0.06
Volstead-----	40	Very limited Slope Slow water movement	1.00 0.41	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.31
179: Laufer-----	50	Very limited Depth to bedrock Large stones on the surface Droughty Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.31
Thiessen-----	35	Very limited Slow water movement Droughty Cobble content Depth to bedrock Slope	1.00 1.00 0.87 0.16 0.04	Very limited Low adsorption Slow water movement Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 0.87 0.16
180: Laufer-----	50	Very limited Slope Depth to bedrock Large stones on the surface Droughty Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slope	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
180: Thiessen-----	35	Very limited Slope Slow water movement Droughty Cobble content Depth to bedrock	 1.00 1.00 1.00 0.87 0.16	Very limited Low adsorption Slope Slow water movement Droughty Cobble content	 1.00 1.00 1.00 1.00 0.87
181: Laufer-----	45	Very limited Slope Depth to bedrock Large stones on the surface Droughty Large stones content	 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slope	 1.00 1.00 1.00 1.00 1.00
Thiessen-----	40	Very limited Slope Slow water movement Droughty Cobble content Depth to bedrock	 1.00 1.00 1.00 0.87 0.16	Very limited Low adsorption Slope Slow water movement Droughty Cobble content	 1.00 1.00 1.00 1.00 0.87
182: Laufer-----	40	Very limited Slope Depth to bedrock Large stones on the surface Droughty Large stones content	 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slope	 1.00 1.00 1.00 1.00 1.00
Thiessen-----	30	Very limited Slope Slow water movement Droughty Cobble content Depth to bedrock	 1.00 1.00 1.00 0.87 0.16	Very limited Low adsorption Slope Slow water movement Droughty Cobble content	 1.00 1.00 1.00 1.00 0.87
Rock outcrop-----	15	Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope Large stones on the surface Slow water movement Droughty	 1.00 0.50 0.41 0.01	Very limited Low adsorption Slope Large stones on the surface Slow water movement Droughty	 1.00 1.00 0.50 0.31 0.01
Lawyer-----	25	Very limited Slope Slow water movement Droughty	 1.00 0.41 0.01	Very limited Low adsorption Slope Slow water movement Droughty	 1.00 1.00 0.31 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
183: Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00 1.00
184: Lickskillet-----	40	Very limited Slope Depth to bedrock Droughty Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00 1.00
Dixiejett-----	25	Very limited Slope Droughty Slow water movement	1.00 0.95 0.41	Very limited Low adsorption Slope Droughty Slow water movement	1.00 1.00 0.95 0.31
Rock outcrop-----	20	Not rated		Not rated	
185: Lickskillet-----	40	Very limited Depth to bedrock Droughty Cobble content Large stones on the surface Runoff	1.00 1.00 1.00 0.99 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99
Doublecreek-----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Rockly-----	20	Very limited Depth to bedrock Droughty Cobble content Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04
186: Lickskillet-----	30	Very limited Slope Depth to bedrock Droughty Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00 1.00
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00
Rockly-----	25	Very limited Slope Depth to bedrock Droughty Cobble content Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
187: Limberjim-----	85	Somewhat limited Slope	0.04	Very limited Low adsorption Slope	1.00 0.04
188: Limberjim-----	50	Very limited Slope	1.00	Very limited Low adsorption Slope	1.00 1.00
Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
189: Limberjim-----	60	Very limited Slope	1.00	Very limited Low adsorption Slope	1.00 1.00
Syrupcreek-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.65 0.04	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.65 0.04
190: Limberjim-----	70	Very limited Slope	1.00	Very limited Low adsorption Slope	1.00 1.00
Syrupcreek-----	15	Very limited Slope Depth to bedrock Droughty	1.00 0.65 0.04	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.65 0.04
191: Limberjim-----	45	Somewhat limited Slope	0.01	Very limited Low adsorption Slope	1.00 0.01
Tamara-----	40	Somewhat limited Slow water movement Too acid Slope	0.41 0.03 0.01	Somewhat limited Slow water movement Too acid Slope	0.31 0.14 0.01
192: Linecreek-----	55	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
Getaway-----	35	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
193: Lookingglass-----	85	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification	1.00  0.95  0.95	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification	1.00  0.95  0.95
194: Lookingglass-----	85	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95  0.95  0.63	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95  0.95  0.63
195: Lookingglass, stony	85	Very limited Slow water movement Large stones on the surface Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  1.00  0.95  0.95  0.04	Very limited Slow water movement Large stones on the surface Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  1.00  0.95  0.95  0.04
196: Lookingglass, cobbly	60	Very limited Slope Slow water movement Depth to saturated zone Strongly contrasting textural stratification Cobble content	1.00  1.00  0.95  0.95  0.12	Very limited Slow water movement Slope Depth to saturated zone Strongly contrasting textural stratification Cobble content	1.00  1.00  0.95  0.95  0.12
Lookingglass-----	25	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95  0.95  0.04	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95  0.95  0.04



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
197: Lookingglass-----	65	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95 0.95 0.04	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95 0.95 0.04
Sopher-----	20	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
198: Lookingglass-----	65	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95 0.95 0.04	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00  0.95 0.95 0.04
Sopher-----	20	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
199: Lostine-----	85	Not limited		Not limited	
200: Mallory-----	35	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	1.00 1.00 1.00 1.00 1.00
Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00
Lawyer-----	25	Very limited Slope Large stones on the surface Slow water movement Droughty	1.00 0.50 0.41 0.01	Very limited Low adsorption Slope Large stones on the surface Slow water movement Droughty	1.00 1.00 0.50 0.31 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
201: Mallory-----	35	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	1.00 1.00 1.00 1.00 1.00
Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00
Lawyer-----	25	Very limited Slope Large stones on the surface Slow water movement Droughty	1.00 0.50 0.41 0.01	Very limited Low adsorption Slope Large stones on the surface Slow water movement Droughty	1.00 1.00 0.50 0.31 0.01
202: Mallory-----	40	Very limited Slope Slow water movement Large stones on the surface Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00 0.80	Very limited Low adsorption Slope Large stones on the surface Droughty Slow water movement	1.00 1.00 1.00 1.00 1.00
Lawyer-----	35	Very limited Slope Large stones on the surface Slow water movement Droughty	1.00 0.50 0.41 0.01	Very limited Low adsorption Slope Large stones on the surface Slow water movement Droughty	1.00 1.00 0.50 0.31 0.01
Rock outcrop-----	10	Not rated		Not rated	
203: Matheny-----	35	Very limited Slope	1.00	Very limited Low adsorption Slope	1.00 1.00
Linville-----	25	Very limited Slope	1.00	Very limited Slope	1.00
Laufer-----	25	Very limited Slope Depth to bedrock Large stones on the surface Droughty Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slope	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
204: Matterhorn-----	85	Very limited Filtering capacity Droughty Leaching	1.00 0.99 0.45	Very limited Filtering capacity Droughty	1.00 0.99
205: Minam-----	85	Somewhat limited Strongly contrasting textural stratification	0.10	Somewhat limited Strongly contrasting textural stratification	0.10
206: Minam-----	85	Somewhat limited Slope Strongly contrasting textural stratification	0.63 0.10	Somewhat limited Slope Strongly contrasting textural stratification	0.63 0.10
207: Minam-----	85	Somewhat limited Strongly contrasting textural stratification	0.10	Somewhat limited Strongly contrasting textural stratification	0.10
208: Minam-----	85	Somewhat limited Slope Strongly contrasting textural stratification	0.63 0.10	Somewhat limited Slope Strongly contrasting textural stratification	0.63 0.10
209: Minam-----	90	Somewhat limited Cobble content Strongly contrasting textural stratification Slope	0.50 0.10 0.04	Somewhat limited Cobble content Strongly contrasting textural stratification Slope	0.50 0.10 0.04
210: Minam-----	90	Very limited Large stones on the surface Strongly contrasting textural stratification	0.99 0.10	Very limited Large stones on the surface Strongly contrasting textural stratification	0.99 0.10
211: Minam-----	90	Very limited Large stones on the surface Slope Strongly contrasting textural stratification	0.99 0.63 0.10	Very limited Large stones on the surface Slope Strongly contrasting textural stratification	0.99 0.63 0.10

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
212: Minam-----	30	Somewhat limited Strongly contrasting textural stratification	0.10	Somewhat limited Strongly contrasting textural stratification	0.10
Minam, gravelly----	20	Somewhat limited Strongly contrasting textural stratification	0.10	Somewhat limited Strongly contrasting textural stratification	0.10
Endoaquepts-----	40	Very limited Depth to saturated zone Runoff	1.00 0.40	Very limited Depth to saturated zone	1.00
213: Minam, gravelly----	30	Somewhat limited Slope Strongly contrasting textural stratification	0.63 0.10	Somewhat limited Slope Strongly contrasting textural stratification	0.63 0.10
Minam, stony-----	25	Very limited Large stones on the surface Slope Strongly contrasting textural stratification	0.99 0.63 0.10	Very limited Large stones on the surface Slope Strongly contrasting textural stratification	0.99 0.63 0.10
Endoaquepts-----	35	Very limited Depth to saturated zone Slope Runoff	1.00 0.63 0.40	Very limited Depth to saturated zone Slope	1.00 0.63
214: Mippon-----	90	Very limited Strongly contrasting textural stratification Filtering capacity Droughty	1.00 0.99 0.99	Very limited Strongly contrasting textural stratification Filtering capacity Droughty Flooding	1.00 0.99 0.99 0.40
215: Mountemily-----	45	Very limited Slope Too acid	1.00 0.11	Very limited Slope Too acid	1.00 0.42
Troutmeadows-----	40	Very limited Slope Depth to bedrock Too acid	1.00 0.42 0.03	Very limited Low adsorption Slope Depth to bedrock Too acid	1.00 1.00 0.42 0.14
216: Mountemily-----	45	Very limited Slope Too acid	1.00 0.11	Very limited Slope Too acid	1.00 0.42

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
216: Troutmeadows-----	40	Very limited Slope Depth to bedrock Too acid	1.00 0.42 0.03	Very limited Low adsorption Slope Depth to bedrock Too acid	1.00 1.00 0.42 0.14
217: Mountemily-----	45	Very limited Slope Too acid	1.00 0.11	Very limited Slope Too acid	1.00 0.42
Troutmeadows-----	40	Very limited Slope Depth to bedrock Too acid	1.00 0.42 0.03	Very limited Low adsorption Slope Depth to bedrock Too acid	1.00 1.00 0.42 0.14
218: Mountemily-----	35	Very limited Slope Too acid	1.00 0.11	Very limited Slope Too acid	1.00 0.42
Troutmeadows-----	25	Very limited Slope Depth to bedrock Too acid	1.00 0.42 0.03	Very limited Low adsorption Slope Depth to bedrock Too acid	1.00 1.00 0.42 0.14
Anatone, cold-----	25	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
219: Needhill-----	35	Very limited Slope Too acid	1.00 0.03	Very limited Low adsorption Slope Too acid	1.00 1.00 0.14
Parsnip-----	25	Very limited Slope Depth to bedrock Droughty Slow water movement Runoff	1.00 1.00 0.91 0.41 0.40	Very limited Depth to bedrock Low adsorption Slope Droughty Slow water movement	1.00 1.00 1.00 0.91 0.31
Bocker-----	25	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
220: Needhill-----	45	Somewhat limited Too acid Slope	0.03 0.01	Very limited Low adsorption Too acid Slope	1.00 0.14 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
220: Zumwalt-----	40	Very limited Slow water movement Strongly contrasting textural stratification Depth to bedrock Slope	1.00 1.00 0.03 0.01	Very limited Slow water movement Low adsorption Strongly contrasting textural stratification Depth to bedrock Slope	1.00 1.00 1.00 0.03 0.01
221: Olot-----	85	Very limited Strongly contrasting textural stratification Slow water movement Depth to bedrock Slope	1.00 0.41 0.06 0.04	Very limited Low adsorption Strongly contrasting textural stratification Slow water movement Depth to bedrock Slope	1.00 1.00 0.31 0.06 0.04
222: Olot-----	85	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00 0.31 0.06
223: Olot-----	50	Very limited Strongly contrasting textural stratification Slow water movement Depth to bedrock Slope	1.00 0.41 0.06 0.04	Very limited Low adsorption Strongly contrasting textural stratification Slow water movement Depth to bedrock Slope	1.00 1.00 0.31 0.06 0.04
Anatone-----	35	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
224: Olot-----	50	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00 0.31 0.06

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
224: Anatone-----	35	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
225: Parsnip-----	85	Very limited Depth to bedrock Droughty Slow water movement Runoff	1.00 0.91 0.41 0.40	Very limited Depth to bedrock Low adsorption Droughty Slow water movement	1.00 1.00 0.91 0.31
226: Parsnip-----	55	Very limited Depth to bedrock Droughty Slow water movement Runoff Slope	1.00 0.91 0.41 0.40 0.01	Very limited Depth to bedrock Low adsorption Droughty Slow water movement Slope	1.00 1.00 0.91 0.31 0.01
Bocker-----	30	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.01	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.01
227: Phys-----	85	Somewhat limited Slow water movement Cobble content Droughty	0.41 0.04 0.01	Somewhat limited Slow water movement Cobble content Droughty	0.31 0.04 0.01
228: Phys-----	40	Somewhat limited Slow water movement Slope Too acid Droughty	0.41 0.04 0.01 0.01	Somewhat limited Slow water movement Slope Too acid Droughty	0.31 0.04 0.03 0.01
Doublecreek-----	30	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Collegecreek-----	20	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
229: Phys-----	35	Very limited Slope Slow water movement Too acid Droughty	1.00 0.41 0.01 0.01	Very limited Slope Slow water movement Too acid Droughty	1.00 0.31 0.03 0.01
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00
Collegecreek-----	25	Very limited Slope	1.00	Very limited Slope	1.00



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
230: Powwatka-----	85	Somewhat limited Depth to bedrock Slow water movement Droughty	0.90 0.41  0.28	Very limited Low adsorption Depth to bedrock Slow water movement Droughty	1.00 0.90 0.31  0.28
231: Powwatka-----	85	Somewhat limited Depth to bedrock Slope Slow water movement Droughty	0.90 0.63 0.41 0.28	Very limited Low adsorption Depth to bedrock Slope Slow water movement Droughty	1.00 0.90 0.63 0.31  0.28
232: Powwatka-----	85	Very limited Slope Depth to bedrock Slow water movement Droughty	1.00 0.90 0.41 0.28	Very limited Low adsorption Slope Depth to bedrock Slow water movement Droughty	1.00 1.00 0.90 0.31  0.28
233: Powwatka-----	85	Very limited Slope Depth to bedrock Slow water movement Droughty	1.00 0.90 0.41 0.28	Very limited Low adsorption Slope Depth to bedrock Slow water movement Droughty	1.00 1.00 0.90 0.31  0.28
234: Puzzlecreek-----	85	Very limited Slope Large stones on the surface Droughty Large stones content Too acid	1.00 1.00  0.98 0.53 0.03	Very limited Low adsorption Slope Large stones on the surface Droughty Too acid	1.00 1.00 1.00 0.98 0.14
235: Ramo-----	85	Very limited Slow water movement Too acid	1.00 0.02	Very limited Slow water movement Too acid	1.00 0.07
236: Ramo-----	85	Very limited Slow water movement Slope Too acid	1.00 0.63 0.02	Very limited Slow water movement Slope Too acid	1.00 0.63 0.07
237: Ramo-----	85	Very limited Slope Slow water movement Too acid	1.00 1.00 0.02	Very limited Slope Slow water movement Too acid	1.00 1.00 0.07

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
238: Ramo-----	50	Very limited Slow water movement Slope Too acid	1.00 0.04 0.02	Very limited Slow water movement Too acid Slope	1.00 0.07 0.04
Conley-----	35	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 0.99 0.95 0.04	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Slope	1.00 0.99 0.95 0.04
239: Reavis-----	85	Not limited		Not limited	
240: Redmount-----	85	Somewhat limited Strongly contrasting textural stratification	0.29	Somewhat limited Strongly contrasting textural stratification	0.29
241: Redmount-----	85	Somewhat limited Strongly contrasting textural stratification	0.29	Somewhat limited Strongly contrasting textural stratification	0.29
242: Redmount-----	85	Somewhat limited Strongly contrasting textural stratification	0.29	Somewhat limited Strongly contrasting textural stratification	0.29
243: Redmount-----	50	Somewhat limited Strongly contrasting textural stratification	0.29	Somewhat limited Strongly contrasting textural stratification	0.29
Cheval-----	35	Very limited Filtering capacity Depth to saturated zone Flooding Strongly contrasting textural stratification	1.00 0.99 0.60 0.35	Very limited Filtering capacity Flooding Depth to saturated zone Strongly contrasting textural stratification	1.00 1.00 0.99 0.35
244: Riverwash-----	80	Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
246: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Fivebit-----	15	Very limited Slope Depth to bedrock Droughty Slow water movement Runoff	1.00 1.00 1.00 0.43 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 0.32
247: Rock outcrop-----	35	Not rated		Not rated	
Anatone-----	30	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Imnaha-----	20	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
248: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Imnaha-----	15	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
249: Rock outcrop-----	50	Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
249: Cherrycreek-----	20	Very limited Slope Cobble content Large stones on the surface Droughty	1.00 0.87 0.50 0.01	Very limited Low adsorption Slope Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.01
250: Rock outcrop-----	50	Not rated		Not rated	
Linecreek-----	20	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
Anatone-----	15	Very limited Slope Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
251: Rock outcrop-----	45	Not rated		Not rated	
Rockly-----	25	Very limited Slope Depth to bedrock Droughty Cobble content Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00
Dixiejett-----	20	Very limited Slope Droughty Slow water movement	1.00 0.95 0.41	Very limited Low adsorption Slope Droughty Slow water movement	1.00 1.00 0.95 0.31
252: Rockly-----	35	Very limited Slope Depth to bedrock Droughty Cobble content Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	30	Not rated		Not rated	
Copperfield-----	20	Very limited Slope Slow water movement Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.04	Very limited Slope Slow water movement Cobble content Large stones on the surface Droughty	1.00 1.00 0.87 0.50 0.04

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
253: Rockly-----	35	Very limited Slope Depth to bedrock Droughty Cobble content Runoff	 1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	 1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Lickskillet-----	25	Very limited Slope Depth to bedrock Droughty Cobble content Large stones on the surface	 1.00 1.00 1.00 1.00 0.99	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	 1.00 1.00 1.00 1.00 1.00
254: Rondowa-----	90	Not limited		Not limited	
255: Rondowa-----	90	Somewhat limited Slope	 0.63	Somewhat limited Slope	 0.63
256: Rondowa-----	90	Very limited Large stones on the surface Slope	 0.99 0.04	Very limited Large stones on the surface Slope	 0.99 0.04
257: Rondowa-----	90	Very limited Slope Large stones on the surface	 1.00 0.99	Very limited Slope Large stones on the surface	 1.00 0.99
258: Rondowa-----	90	Very limited Slope Large stones on the surface	 1.00 0.99	Very limited Slope Large stones on the surface	 1.00 0.99
259: Rondowa-----	90	Very limited Slope Large stones on the surface	 1.00 0.99	Very limited Slope Large stones on the surface	 1.00 0.99
260: Rondowa-----	90	Very limited Slope Large stones on the surface	 1.00 0.99	Very limited Slope Large stones on the surface	 1.00 0.99
261: Rondowa-----	90	Very limited Large stones on the surface Slope	 0.99 0.04	Very limited Large stones on the surface Slope	 0.99 0.04
262: Rondowa-----	90	Very limited Slope Large stones on the surface	 1.00 0.99	Very limited Slope Large stones on the surface	 1.00 0.99

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
263: Rondowa-----	90	Very limited Slope Large stones on the surface	1.00 0.99	Very limited Slope Large stones on the surface	1.00 0.99
264: Rondowa-----	90	Very limited Slope Large stones on the surface	1.00 0.99	Very limited Slope Large stones on the surface	1.00 0.99
265: Rondowa-----	90	Very limited Slope Large stones on the surface	1.00 0.99	Very limited Slope Large stones on the surface	1.00 0.99
266: Rubble land-----	70	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
267: Sag-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Slow water movement	1.00 1.00
268: Sag-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Slow water movement	1.00 1.00
269: Sag-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Slow water movement	1.00 1.00
270: Schrier-----	85	Not limited		Not limited	
271: Schrier-----	55	Very limited Slope	1.00	Very limited Slope	1.00
Almota-----	30	Very limited Slope Depth to bedrock	1.00 0.01	Very limited Low adsorption Slope Depth to bedrock	1.00 1.00 0.01
272: Schrier-----	50	Very limited Slope	1.00	Very limited Slope	1.00
Almota-----	25	Very limited Slope Depth to bedrock	1.00 0.01	Very limited Low adsorption Slope Depth to bedrock	1.00 1.00 0.01
Rock outcrop-----	10	Not rated		Not rated	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
273: Schuelke-----	55	Very limited Slope Droughty Depth to bedrock	1.00 0.72 0.20	Very limited Low adsorption Slope Droughty Depth to bedrock	1.00 1.00 0.72 0.20
Schrier-----	15	Very limited Slope	1.00	Very limited Slope	1.00
Rockly-----	15	Very limited Depth to bedrock Droughty Cobble content Slope Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
274: Silverlake-----	85	Very limited Slow water movement	1.00	Very limited Low adsorption  Slow water movement	1.00 1.00
275: Slicklog-----	85	Very limited Slope Too acid	1.00 0.03	Very limited Slope Too acid	1.00 0.14
276: Slicklog-----	50	Very limited Slope Too acid	1.00 0.03	Very limited Slope Too acid	1.00 0.14
Eastpine-----	35	Very limited Slope Droughty Cobble content Depth to bedrock	1.00 1.00 0.50 0.01	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 0.50 0.01
277: Slicklog-----	55	Very limited Slope Too acid	1.00 0.03	Very limited Slope Too acid	1.00 0.14
Eastpine-----	20	Very limited Slope Droughty Cobble content Depth to bedrock	1.00 1.00 0.50 0.01	Very limited Low adsorption Slope Droughty Cobble content Depth to bedrock	1.00 1.00 1.00 0.50 0.01
Rock outcrop-----	10	Not rated		Not rated	
278: Slicklog-----	50	Very limited Slope Too acid	1.00 0.03	Very limited Slope Too acid	1.00 0.14
Wintercanyon-----	25	Very limited Slope Depth to bedrock Droughty Too acid	1.00 1.00 1.00 0.03	Very limited Droughty Depth to bedrock Low adsorption Slope Too acid	1.00 1.00 1.00 1.00 0.14
Rock outcrop-----	10	Not rated		Not rated	



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
279: Snell-----	85	Very limited Droughty Depth to bedrock Slow water movement	1.00 0.90 0.41	Very limited Low adsorption Droughty Depth to bedrock Slow water movement	1.00 1.00 0.90 0.31
280: Snell-----	65	Very limited Large stones on the surface Droughty Depth to bedrock Slow water movement Slope	1.00 1.00 0.90 0.41 0.04	Very limited Low adsorption Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.31
Harlow-----	25	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
281: Snell-----	60	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
282: Snell-----	50	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
283: Snell-----	55	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Harlow-----	30	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
284: Snell-----	65	Very limited Droughty Depth to bedrock Slow water movement Slope	1.00 0.90 0.41 0.01	Very limited Low adsorption Droughty Depth to bedrock Slow water movement Slope	1.00 1.00 0.90 0.31 0.01
Harlow-----	25	Very limited Slow water movement Depth to bedrock Droughty Runoff Slope	1.00 1.00 1.00 1.00 0.40 0.01	Very limited Droughty Depth to bedrock Low adsorption Slow water movement Slope	1.00 1.00 1.00 1.00 0.01
285: Snell-----	35	Very limited Slope Large stones on the surface Droughty Depth to bedrock Large stones content	1.00 1.00 1.00 0.90 0.53	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Imnaha-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
286: Snell-----	35	Very limited Slope Large stones on the surface Droughty Depth to bedrock Large stones content	1.00 1.00 1.00 0.90 0.53	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Imnaha-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
287: Snell-----	40	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 1.00 1.00 0.90 0.41	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Harlow-----	30	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
288: Snell-----	35	Very limited Slope Large stones on the surface Droughty Depth to bedrock Large stones content	1.00 1.00 1.00 0.90 0.53	Very limited Low adsorption Large stones on the surface Slope Droughty Depth to bedrock	1.00 1.00 1.00 1.00 0.90
Imnaha-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.90 0.39	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.90 0.39
Rock outcrop-----	25	Not rated		Not rated	
289: Snow-----	85	Not limited		Not limited	

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
290: Sopher-----	85	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
291: Sopher-----	85	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
292: Sopher-----	60	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00
293: Sopher-----	50	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00
294: Sopher-----	50	Very limited Slope Slow water movement Large stones on the surface	1.00 1.00 1.00	Very limited Low adsorption Slope Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00
Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Cobble content	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Slow water movement	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
295: Sturgill-----	85	Very limited Depth to saturated zone Flooding Slow water movement Runoff	1.00 0.60 0.41 0.40	Very limited Depth to saturated zone Flooding Slow water movement	1.00 1.00 0.31
296: Sturgill-----	45	Very limited Depth to saturated zone Flooding Slow water movement Runoff	1.00 0.60 0.41 0.40	Very limited Depth to saturated zone Flooding Slow water movement	1.00 1.00 0.31
Eggleson-----	40	Very limited Filtering capacity Droughty Depth to saturated zone	0.99 0.99 0.86	Very limited Filtering capacity Droughty Depth to saturated zone Flooding	0.99 0.99 0.86 0.40
297: Sweitberg-----	85	Very limited Slow water movement Depth to bedrock	1.00 0.10	Very limited Low adsorption Slow water movement Depth to bedrock	1.00 1.00 0.10
298: Sweitberg-----	85	Very limited Slow water movement Slope Depth to bedrock	1.00 0.63 0.10	Very limited Low adsorption Slow water movement Slope Depth to bedrock	1.00 1.00 0.63 0.10
299: Sweiting-----	85	Very limited Slow water movement Depth to bedrock Slope Too acid Droughty	1.00 0.29 0.04 0.03 0.02	Very limited Low adsorption Slow water movement Depth to bedrock Too acid Slope	1.00 1.00 0.29 0.14 0.04
300: Sweiting-----	85	Very limited Slope Slow water movement Depth to bedrock Too acid Droughty	1.00 1.00 0.29 0.03 0.02	Very limited Low adsorption Slope Slow water movement Depth to bedrock Too acid	1.00 1.00 1.00 0.29 0.14
301: Sweiting-----	50	Very limited Slow water movement Depth to bedrock Slope Too acid Droughty	1.00 0.29 0.04 0.03 0.02	Very limited Low adsorption Slow water movement Depth to bedrock Too acid Slope	1.00 1.00 0.29 0.14 0.04

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
301: Harlow-----	40	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
302: Sweiting-----	50	Very limited Slope Slow water movement Depth to bedrock Too acid Droughty	1.00 1.00 0.29 0.03 0.02	Very limited Low adsorption Slope Slow water movement Depth to bedrock Too acid	1.00 1.00 1.00 0.29 0.14
Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
303: Sweiting-----	50	Very limited Slope Slow water movement Depth to bedrock Too acid Droughty	1.00 1.00 0.29 0.03 0.02	Very limited Low adsorption Slope Slow water movement Depth to bedrock Too acid	1.00 1.00 1.00 0.29 0.14
Klicker-----	40	Very limited Slope Large stones on the surface Droughty Depth to bedrock Slow water movement	1.00 0.99 0.99 0.90 0.41	Very limited Low adsorption Slope Large stones on the surface Droughty Depth to bedrock	1.00 1.00 0.99 0.99 0.90
304: Syrupcreek-----	85	Somewhat limited Depth to bedrock Droughty Slope	0.65 0.04 0.01	Very limited Low adsorption Depth to bedrock Droughty Slope	1.00 0.65 0.04 0.01
305: Syrupcreek-----	60	Somewhat limited Depth to bedrock Droughty Slope	0.65 0.04 0.01	Very limited Low adsorption Depth to bedrock Droughty Slope	1.00 0.65 0.04 0.01
Anatone-----	25	Very limited Depth to bedrock Droughty Large stones on the surface Large stones content Cobble content	1.00 1.00 1.00 0.53 0.50	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
306: Syrupcreek-----	60	Somewhat limited Depth to bedrock Slope Droughty	0.65 0.04 0.04	Very limited Low adsorption Depth to bedrock Slope Droughty	1.00 0.65 0.04 0.04
Lowerbluff-----	25	Very limited Depth to bedrock Droughty Runoff Too acid Slope	1.00 0.70 0.40 0.11 0.04	Very limited Depth to bedrock Low adsorption Droughty Too acid Slope	1.00 1.00 0.70 0.42 0.04
307: Syrupcreek-----	55	Very limited Slope Depth to bedrock Droughty	1.00 0.65 0.04	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.65 0.04
Tamara-----	30	Very limited Slope Slow water movement Too acid	1.00 0.41 0.03	Very limited Slope Slow water movement Too acid	1.00 0.31 0.14
308: Syrupcreek-----	65	Very limited Slope Depth to bedrock Droughty	1.00 0.65 0.04	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.65 0.04
Tamara-----	20	Very limited Slope Slow water movement Too acid	1.00 0.41 0.03	Very limited Slope Slow water movement Too acid	1.00 0.31 0.14
309: Tamara-----	65	Somewhat limited Slow water movement Too acid Slope	0.41 0.03 0.01	Somewhat limited Slow water movement Too acid Slope	0.31 0.14 0.01
Sherod-----	20	Very limited Slow water movement Depth to saturated zone Depth to bedrock Droughty	1.00 1.00 1.00 0.99	Very limited Depth to saturated zone Depth to bedrock Low adsorption Slow water movement Droughty	1.00 1.00 1.00 1.00 0.99
310: Tamara-----	45	Somewhat limited Slow water movement Too acid Slope	0.41 0.03 0.01	Somewhat limited Slow water movement Too acid Slope	0.31 0.14 0.01
Syrupcreek-----	40	Somewhat limited Depth to bedrock Droughty Slope	0.65 0.04 0.01	Very limited Low adsorption Depth to bedrock Droughty Slope	1.00 0.65 0.04 0.01



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
311: Tamarackcanyon-----	40	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
Linecreek-----	25	Very limited Slope Cobble content Filtering capacity Leaching	1.00 1.00 0.99 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00
312: Tamarackcanyon-----	65	Very limited Slow water movement Droughty Slope Too acid Depth to bedrock	1.00 0.07 0.04 0.03 0.01	Very limited Low adsorption Slow water movement Too acid Droughty Slope	1.00 1.00 0.14 0.07 0.04
Lowerbluff-----	20	Very limited Depth to bedrock Droughty Runoff Too acid Slope	1.00 0.70 0.40 0.11 0.04	Very limited Depth to bedrock Low adsorption Droughty Too acid Slope	1.00 1.00 0.70 0.42 0.04
313: Tamarackcanyon-----	40	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
Olot-----	25	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00 0.31 0.06
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
314: Tamarackcanyon-----	40	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
Olot-----	25	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00 0.31 0.06
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00
315: Tannahill-----	35	Very limited Slope Droughty Large stones on the surface Slow water movement	1.00 0.61 0.50 0.43	Very limited Low adsorption Slope Droughty Large stones on the surface Slow water movement	1.00 1.00 0.61 0.50 0.32
Schrier-----	35	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	15	Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope Droughty Large stones on the surface Slow water movement	1.00 0.61 0.50 0.43	Very limited Low adsorption Slope Droughty Large stones on the surface Slow water movement	1.00 1.00 0.61 0.50 0.32
Schuelke-----	30	Very limited Slope Droughty Depth to bedrock	1.00 0.72 0.20	Very limited Low adsorption Slope Droughty Depth to bedrock	1.00 1.00 0.72 0.20
Licksillet-----	25	Very limited Slope Depth to bedrock Droughty Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99	Very limited Droughty Depth to bedrock Low adsorption Slope Cobble content	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
317: Thiessen-----	85	Very limited Slope Slow water movement Droughty Cobble content Depth to bedrock	 1.00 1.00  1.00 0.87 0.16	Very limited Low adsorption Slope Slow water movement Droughty Cobble content	 1.00 1.00 1.00  1.00 0.87
318: Threebuck-----	70	Very limited Slow water movement Strongly contrasting textural stratification Slope Too acid	 1.00  1.00   0.04 0.03	Very limited Low adsorption Strongly contrasting textural stratification Slow water movement Too acid Slope	 1.00 1.00   1.00  0.14 0.04
Harlow-----	15	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	 1.00  1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	 1.00 1.00 1.00 1.00 1.00
319: Threebuck-----	35	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	 1.00 1.00  1.00   0.03	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	 1.00 1.00 1.00   1.00 0.14
Linecreek-----	30	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	 1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	 1.00 1.00 0.99
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	 1.00 1.00  1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	 1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
320: Threebuck-----	50	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.03	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.14
Tamarackcanyon-----	35	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
321: Threebuck-----	50	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.03	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.14
Tamarackcanyon-----	35	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
322: Threebuck-----	35	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.03	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.14
Tamarackcanyon-----	30	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Droughty Large stones on the surface	1.00 1.00 1.00 1.00 1.00	Very limited Droughty Depth to bedrock Low adsorption Slope Large stones on the surface	1.00 1.00 1.00 1.00 1.00

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
323: Threebuck-----	35	Very limited Slope Slow water movement Strongly contrasting textural stratification Too acid	1.00 1.00 1.00 0.03	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Too acid	1.00 1.00 1.00 1.00 0.14
Tamarackcanyon-----	30	Very limited Slope Slow water movement Droughty Too acid Depth to bedrock	1.00 1.00 0.07 0.03 0.01	Very limited Low adsorption Slope Slow water movement Too acid Droughty	1.00 1.00 1.00 0.14 0.07
Linecreek-----	20	Very limited Slope Cobble content Filtering capacity Large stones content Leaching	1.00 1.00 0.99 0.53 0.45	Very limited Cobble content Slope Filtering capacity	1.00 1.00 0.99
324: Tippett-----	70	Very limited Slow water movement Strongly contrasting textural stratification	1.00 1.00	Very limited Slow water movement Strongly contrasting textural stratification	1.00 1.00
Harlow-----	20	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
325: Tippett-----	70	Very limited Slow water movement Strongly contrasting textural stratification	1.00 1.00	Very limited Slow water movement Strongly contrasting textural stratification	1.00 1.00
Zumwalt-----	20	Very limited Slow water movement Strongly contrasting textural stratification Depth to bedrock	1.00 1.00 0.03	Very limited Slow water movement Low adsorption Strongly contrasting textural stratification Depth to bedrock	1.00 1.00 1.00 0.03

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
326: Tolo-----	85	Very limited Strongly contrasting textural stratification Slow water movement Slope	0.99  0.41 0.04	Very limited Strongly contrasting textural stratification Slow water movement Slope	0.99  0.31 0.04
327: Tolo-----	85	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.41	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.31
328: Tolo, fan-----	85	Somewhat limited Strongly contrasting textural stratification Slow water movement Slope	0.99  0.41 0.04	Somewhat limited Strongly contrasting textural stratification Slow water movement Slope	0.99  0.31 0.04
329: Tolo-----	50	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.41	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.31
Getaway-----	35	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
330: Tolo-----	50	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.41	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.31
Getaway-----	35	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
331: Tolo-----	50	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.41	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.31
Getaway-----	35	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
332: Tolo-----	50	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.41	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.31
Getaway-----	35	Very limited Slope Slow water movement	1.00 0.30	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.22
333: Tolo-----	50	Very limited Strongly contrasting textural stratification Slow water movement Slope	0.99  0.41 0.04	Very limited Strongly contrasting textural stratification Slow water movement Slope	0.99  0.31 0.04
Olot-----	35	Very limited Strongly contrasting textural stratification Slow water movement Depth to bedrock Slope	1.00  0.41 0.06 0.04	Very limited Low adsorption Strongly contrasting textural stratification Slow water movement Depth to bedrock Slope	1.00 1.00  0.31 0.06 0.04
334: Tolo-----	55	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.41	Very limited Slope Strongly contrasting textural stratification Slow water movement	1.00 0.99  0.31



Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
334: Olot-----	30	Very limited Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00  0.41 0.06	Very limited Low adsorption Slope Strongly contrasting textural stratification Slow water movement Depth to bedrock	1.00 1.00 1.00  0.31 0.06
335: Topper-----	85	Not limited		Not limited	
336: Topper-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63
337: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00
338: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00
339: Troutmeadows-----	65	Somewhat limited Depth to bedrock Slope Too acid	0.42 0.04 0.03	Very limited Low adsorption Depth to bedrock Too acid Slope	1.00 0.42 0.14 0.04
Crawfish-----	20	Very limited Depth to bedrock Cobble content Droughty Runoff Too acid	1.00 1.00 1.00 0.40 0.11	Very limited Droughty Depth to bedrock Low adsorption Cobble content Too acid	1.00 1.00 1.00 1.00 0.42
340: Tuckerdowns-----	85	Somewhat limited Droughty	0.01	Somewhat limited Droughty	0.01
341: Tuckerdowns-----	85	Somewhat limited Slope Droughty	0.63 0.01	Somewhat limited Slope Droughty	0.63 0.01
342: Tuckerdowns-----	85	Very limited Slope Droughty	1.00 0.01	Very limited Slope Droughty	1.00 0.01
343: Vandamine-----	60	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.10 0.01	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.10 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
344: Vandamine-----	50	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope Depth to bedrock Droughty	1.00 0.10 0.01	Very limited Low adsorption Slope Depth to bedrock Droughty	1.00 1.00 0.10 0.01
Rock outcrop-----	10	Not rated		Not rated	
345: Veazie-----	85	Very limited Filtering capacity Strongly contrasting textural stratification Flooding	1.00 0.64 0.60	Very limited Filtering capacity Flooding Strongly contrasting textural stratification	1.00 1.00 0.64
346: Voats-----	50	Very limited Filtering capacity Strongly contrasting textural stratification Flooding Droughty	1.00 1.00 0.60 0.56	Very limited Filtering capacity Flooding Strongly contrasting textural stratification Droughty	1.00 1.00 1.00 0.56
Veazie-----	35	Very limited Filtering capacity Strongly contrasting textural stratification Flooding	1.00 0.64 0.60	Very limited Filtering capacity Flooding Strongly contrasting textural stratification	1.00 1.00 0.64
347: Volstead-----	35	Somewhat limited Slow water movement Slope	0.41 0.01	Very limited Low adsorption Slow water movement Slope	1.00 0.31 0.01
Quirk-----	30	Very limited Slow water movement Strongly contrasting textural stratification Depth to bedrock Slope	1.00 0.99 0.03 0.01	Very limited Low adsorption Slow water movement Strongly contrasting textural stratification Depth to bedrock Slope	1.00 1.00 0.99 0.03 0.01
Bocker-----	20	Very limited Depth to bedrock Cobble content Droughty Runoff Slope	1.00 1.00 1.00 0.40 0.01	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.01

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
348: Volstead-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Low adsorption Slope Slow water movement	1.00 1.00 0.31
Quirk-----	30	Very limited Slope Slow water movement Strongly contrasting textural stratification Depth to bedrock	1.00 1.00 0.99 0.03	Very limited Low adsorption Slope Slow water movement Strongly contrasting textural stratification Depth to bedrock	1.00 1.00 1.00 0.99 0.03
Bocker-----	20	Very limited Slope Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 1.00
349: Wallowa-----	50	Somewhat limited Depth to bedrock Slope	0.54 0.04	Very limited Low adsorption Depth to bedrock Slope	1.00 0.54 0.04
Bocker-----	40	Very limited Depth to bedrock Cobble content Droughty Runoff	1.00 1.00 1.00 0.40	Very limited Droughty Depth to bedrock Low adsorption Cobble content	1.00 1.00 1.00 1.00
350: Watama-----	85	Somewhat limited Depth to bedrock Slow water movement Droughty	0.84 0.41 0.40	Very limited Low adsorption Depth to bedrock Droughty Slow water movement	1.00 0.84 0.40 0.31
351: Watama-----	85	Somewhat limited Depth to bedrock Slope Slow water movement Droughty	0.84 0.63 0.41 0.40	Very limited Low adsorption Depth to bedrock Slope Droughty Slow water movement	1.00 0.84 0.63 0.40 0.31
352: Watama-----	50	Somewhat limited Depth to bedrock Slow water movement Droughty Slope	0.84 0.41 0.40 0.04	Very limited Low adsorption Depth to bedrock Droughty Slow water movement Slope	1.00 0.84 0.40 0.31 0.04

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste,  
and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food- processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
352: Rockly-----	35	Very limited Depth to bedrock Droughty Cobble content Runoff Slope	1.00 1.00 1.00 0.40 0.04	Very limited Droughty Depth to bedrock Low adsorption Cobble content Slope	1.00 1.00 1.00 1.00 0.04
353: Water-----	95	Not rated		Not rated	
354: Wilkins-----	85	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Flooding Runoff	1.00 1.00 0.84 0.60 0.40	Very limited Slow water movement Depth to saturated zone Flooding Strongly contrasting textural stratification	1.00 1.00 1.00 0.84
355: Wilkins-----	55	Very limited Slow water movement Depth to saturated zone Strongly contrasting textural stratification Flooding Runoff	1.00 1.00 0.84 0.60 0.40	Very limited Slow water movement Depth to saturated zone Flooding Strongly contrasting textural stratification	1.00 1.00 1.00 0.84
Feaginranch-----	30	Very limited Slow water movement Depth to saturated zone Ponding Flooding Runoff	1.00 1.00 1.00 0.60 0.40	Very limited Depth to saturated zone Flooding Slow water movement Ponding	1.00 1.00 1.00 1.00
356: Wolot-----	85	Somewhat limited Strongly contrasting textural stratification Slow water movement Slope	0.99 0.41 0.01	Somewhat limited Strongly contrasting textural stratification Slow water movement Slope	0.99 0.31 0.01
357: Zumwalt-----	65	Very limited Slow water movement Strongly contrasting textural stratification Depth to bedrock	1.00 1.00 0.03	Very limited Slow water movement Low adsorption Strongly contrasting textural stratification Depth to bedrock	1.00 1.00 1.00 0.03

Table 6a.--Agricultural Disposal of Manure, Food-Processing Waste, and Sewage Sludge--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
357: Harlow-----	25	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
358: Zumwalt-----	65	Very limited Slow water movement Strongly contrasting textural stratification Slope Depth to bedrock	1.00 1.00 0.63 0.03	Very limited Slow water movement Low adsorption Strongly contrasting textural stratification Slope Depth to bedrock	1.00 1.00 1.00 0.63 0.03
Harlow-----	25	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Slope	1.00 1.00 1.00 1.00 0.63	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00
359: Zumwalt-----	65	Very limited Slow water movement Strongly contrasting textural stratification Slope Depth to bedrock	1.00 1.00 0.04 0.03	Very limited Slow water movement Low adsorption Strongly contrasting textural stratification Slope Depth to bedrock	1.00 1.00 1.00 0.04 0.03
Harlow-----	20	Very limited Slow water movement Depth to bedrock Droughty Large stones on the surface Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Droughty Depth to bedrock Low adsorption Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.12	Somewhat limited Slow water movement Depth to saturated zone Too steep for surface application Too acid	0.96 0.43 0.32 0.14
2: Akerite-----	85	Very limited Slope Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to saturated zone Too acid	1.00 1.00 0.96 0.43 0.14
3: Albee-----	45	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.50
Anatone-----	40	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50 0.50
4: Albee-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
4: Bocker-----	40	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
5: Analulu-----	30	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.03
Slicklog-----	30	Very limited Slope Slow water movement Stone content	1.00 1.00 0.52	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.14
Bluecanyon-----	30	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
6: Analulu-----	40	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.03
Slicklog-----	35	Very limited Slope Slow water movement Stone content	1.00 1.00 0.52	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.14
Rock outcrop-----	10	Not rated		Not rated	



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
7: Anatone-----	50	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50 0.50
Bocker-----	35	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
8: Anatone-----	50	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Bocker-----	35	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
9: Anatone-----	50	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Bocker-----	35	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10: Anatone-----	35	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Cobble content Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50 0.22
Bocker-----	30	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.22
Fivebit-----	20	Very limited Slow water movement Depth to bedrock Slope Cobble content	1.00 1.00 1.00 0.04	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.22 0.22
11: Anatone-----	40	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Bocker-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
Fivebit-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.04	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.22

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
12: Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Cherrycreek-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface Depth to bedrock	1.00 1.00 1.00 0.87 0.50 0.18
Imnaha-----	20	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
13: Anatone-----	40	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Imnaha-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
14: Anatone-----	45	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Kamela-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
15: Anatone-----	50	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Klicker-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
Rock outcrop-----	10	Not rated		Not rated	
16: Anatone-----	50	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
16: Linecreek-----	25	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00  1.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
17: Anatone-----	50	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00  1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00  1.00 1.00 0.50
Olot-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00  1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00  1.00 0.21
18: Anatone-----	45	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00  1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00  1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated	
Clearline-----	15	Very limited Slope Depth to bedrock Cobble content Slow water movement Stone content	1.00 1.00 0.34 0.31 0.08	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Filtering capacity	1.00  1.00 0.08 0.01

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
19: Anatone-----	40	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	 1.00 1.00 1.00  1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	 1.00 1.00  1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated	
Fivebit-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content	 1.00 1.00 1.00 0.04	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	 1.00 1.00 1.00  0.22
20: Anatone-----	40	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	 1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	 1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to bedrock Slow water movement	 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	 1.00 1.00 1.00
21: Balm-----	50	Very limited Depth to saturated zone Slow water movement	 1.00 1.00	Very limited Depth to saturated zone Filtering capacity	 1.00 0.99
Catherine-----	40	Very limited Depth to saturated zone Slow water movement Flooding	 1.00 1.00 0.60	Very limited Depth to saturated zone Flooding	 1.00 0.60

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
22: Bittercreek-----	65	Very limited Depth to saturated zone Slow water movement Cobble content	1.00 1.00 0.91	Very limited Depth to saturated zone Filtering capacity	1.00 0.99
Mippon-----	20	Very limited Depth to saturated zone Slow water movement Cobble content	1.00 1.00 0.99	Very limited Filtering capacity	0.99
23: Bocker-----	85	Very limited Depth to bedrock Slow water movement Cobble content Slope	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Cobble content Too steep for surface application	1.00 1.00 0.32
24: Bocker-----	60	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
Anatone-----	15	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50 0.50
Rock outcrop-----	10	Not rated		Not rated	
25: Bocker-----	60	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
25: Anatone-----	15	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	 1.00 1.00 1.00  1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	 1.00 1.00  1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
26: Bocker-----	50	Very limited Slope Depth to bedrock Slow water movement Cobble content	 1.00 1.00 1.00  1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	 1.00 1.00 1.00  1.00
Clearline-----	20	Very limited Slope Depth to bedrock Cobble content Slow water movement Stone content	 1.00 1.00 0.34 0.31 0.08	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Filtering capacity	 1.00  1.00 0.08 0.01
Rock outcrop-----	20	Not rated		Not rated	
27: Bocker-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content	 1.00 1.00 1.00  1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	 1.00 1.00 1.00  1.00
Imnaha-----	30	Very limited Slope Depth to bedrock Slow water movement	 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	 1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
28: Bridgewater-----	90	Very limited Cobble content Slope Stone content Flooding Slow water movement	1.00 1.00 1.00 0.60 0.31	Very limited Filtering capacity Large stones on the surface Cobble content Too steep for surface application Flooding	1.00 1.00 1.00 1.00 1.00 0.60
29: Btree-----	45	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement Too acid	1.00 1.00 1.00 0.96 0.94 0.42
Flycreek-----	40	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.94 0.42
30: Btree-----	45	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement Too acid	1.00 1.00 1.00 0.96 0.94 0.42
Flycreek-----	40	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.94 0.42

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
31: Btree-----	30	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement Too acid	1.00 1.00 0.96 0.94 0.42
Flycreek-----	30	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.94 0.42
Anatone-----	30	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
32: Btree-----	30	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement Too acid	1.00 1.00 0.96 0.94 0.42
Flycreek-----	30	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.94 0.42

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
32: Anatone-----	30	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
33: Btree-----	40	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement Too acid	1.00 1.00 0.96 0.94 0.42
Klicker-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
34: Bucketlake-----	85	Very limited Slope Cobble content Slow water movement	1.00 0.48 0.31	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.85

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
35: Bucketlake-----	85	Very limited Slope Cobble content Slow water movement	1.00 0.48 0.31	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.85
36: Buford-----	45	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Too steep for surface application Slow water movement Too steep for sprinkler irrigation Depth to bedrock	1.00 0.96 0.50 0.42
Anatone-----	40	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50 0.50
37: Buford-----	45	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Too steep for surface application Slow water movement Too steep for sprinkler irrigation Depth to bedrock	1.00 0.96 0.50 0.42
Bocker-----	40	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
38: Bunchpoint-----	85	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too acid Too steep for sprinkler irrigation	1.00 1.00 0.42 0.22

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
39: Bunchpoint-----	45	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too acid Too steep for sprinkler irrigation	1.00 1.00 0.42 0.22
Bocker-----	40	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.22
40: Chard-----	90	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
41: Cherrycreek-----	50	Very limited Depth to bedrock Slow water movement Cobble content Slope Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Cobble content Too steep for sprinkler irrigation Large stones on the surface Depth to bedrock	1.00 0.87 0.50 0.50 0.18
Imnaha-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.50
42: Cherrycreek-----	50	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface Depth to bedrock	1.00 1.00 0.87 0.50 0.18

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
42: Imnaha-----	20	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Imnaha, moist-----	15	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
43: Cherrycreek-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface Depth to bedrock	1.00 1.00 1.00 0.87 0.50 0.18
Imnaha-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface Depth to bedrock	1.00 1.00 1.00 0.87 0.50 0.18
Limberjim-----	35	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 0.26 0.14	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 1.00 0.99
Rock outcrop-----	10	Not rated		Not rated	



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
45: Chesnimnus-----	85	Very limited Slow water movement	1.00	Somewhat limited Slow water movement	0.21
46: Chesnimnus-----	85	Very limited Slow water movement	1.00	Somewhat limited Slow water movement	0.21
47: Cheval-----	85	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Depth to saturated zone Flooding	1.00 0.99 0.60
48: Cloverland-----	90	Very limited Slow water movement Depth to saturated zone Slope	1.00 0.95 0.12	Somewhat limited Slow water movement Depth to saturated zone Too steep for surface application	0.96 0.95 0.32
49: Cloverland-----	90	Very limited Slope Slow water movement Depth to saturated zone	1.00 1.00 0.95	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to saturated zone	1.00 1.00 0.96 0.95
50: Conley-----	90	Very limited Slow water movement Depth to saturated zone	1.00 0.99	Very limited Slow water movement Depth to saturated zone	1.00 0.99
51: Conley-----	90	Very limited Slow water movement Depth to saturated zone Slope	1.00 0.99 0.12	Very limited Slow water movement Depth to saturated zone Too steep for surface application	1.00 0.99 0.32

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
52: Copperfield-----	50	Very limited Slope Slow water movement Cobble content	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content Large stones on the surface	1.00 1.00 0.96 0.87 0.50
Thiessen-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content	1.00 1.00 1.00 0.94 0.87
53: Copperfield-----	40	Very limited Slope Slow water movement Cobble content	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content Large stones on the surface	1.00 1.00 0.96 0.87 0.50
Thiessen-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content	1.00 1.00 1.00 0.94 0.87
Rock outcrop-----	15	Not rated		Not rated	
54: Cowsly-----	90	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 1.00 0.12	Very limited Slow water movement Depth to saturated zone Depth to bedrock Too steep for surface application Too acid	1.00 0.99 0.42 0.32 0.01

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
55: Cowsly-----	90	Very limited Slope Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 1.00 1.00	Very limited Too steep for surface application Slow water movement Too steep for sprinkler irrigation Depth to saturated zone Depth to bedrock	1.00 1.00 1.00 0.99 0.42
56: Cowsly-----	85	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 1.00 1.00	Very limited Slow water movement Too steep for surface application Large stones on the surface Depth to saturated zone Too steep for sprinkler irrigation	1.00 1.00 0.99 0.99 0.50
57: Cowsly, cobbly-----	60	Very limited Slope Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 1.00 1.00 0.99 0.42
Cowsly-----	25	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 1.00 1.00	Very limited Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 0.99 0.50 0.42

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
58: Cowsly, cobbly-----	60	Very limited Slope Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 1.00 1.00 0.99 0.42
Cowsly-----	25	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 1.00 1.00	Very limited Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 0.99 0.50 0.42
59: Cowsly-----	60	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 1.00 1.00	Very limited Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 0.99 0.50 0.42
Howmeadows-----	15	Very limited Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 1.00	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 1.00
Sherod-----	15	Very limited Slow water movement Depth to saturated zone Depth to bedrock Cobble content	1.00 1.00 1.00 0.44	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 0.96
60: Demasters-----	50	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 0.88

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
60: Snell-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.44	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
61: Dixiejett-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content	1.00 1.00 1.00 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.94 0.21
Lickskillet-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99
Rockly-----	20	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00
62: Doublecreek-----	40	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Flybow-----	30	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
63: Doublecreek-----	55	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 0.50
Langrell-----	30	Very limited Slow water movement Cobble content Stone content	1.00 0.99 0.20	Not limited	
64: Doublecreek-----	45	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 0.50
Phys-----	40	Very limited Slow water movement Slope Cobble content	1.00 1.00 0.96	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 0.50 0.21 0.03
65: Downards-----	45	Very limited Slope Slow water movement Cobble content	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.15
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	20	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
66: Downards-----	50	Very limited Slope Slow water movement Cobble content	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.15
Emily-----	20	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.97	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 0.50
Sopher-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 0.94 0.88
67: Downards-----	60	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.32 0.15
Klicker-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
68: Downards-----	60	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.32 0.15
Klicker-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
69: Downeygulch-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too acid Too steep for sprinkler irrigation	1.00 1.00 0.42 0.22
Lowerbluff-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.31	Very limited Depth to bedrock Too steep for surface application Too acid Too steep for sprinkler irrigation	1.00 1.00 0.42 0.22
70: Downeygulch-----	55	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.42
Thirstygulch-----	30	Very limited Slope Depth to bedrock Stone content Cobble content Slow water movement	1.00 1.00 1.00 0.93 0.32	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
71: Eggleson-----	85	Very limited Depth to saturated zone Slow water movement Cobble content	1.00 1.00 0.66	Very limited Filtering capacity Depth to saturated zone	0.99 0.86
72: Emily-----	55	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.97	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 0.50
Wolot-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
73: Endoaquolls, mesic--	85	Very limited Depth to saturated zone Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.39	Very limited Depth to saturated zone	1.00
74: Ferguson-----	85	Very limited Slow water movement Slope Stone content	1.00 1.00 0.86	Very limited Too steep for surface application Filtering capacity Too steep for sprinkler irrigation	1.00 0.99 0.50
75: Ferguson-----	85	Very limited Slope Slow water movement Stone content	1.00 1.00 0.86	Very limited Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 0.99

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
76: Ferguson-----	85	Very limited Slope Slow water movement Stone content	1.00 1.00 0.86	Very limited Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 0.99
77: Ferguson-----	85	Very limited Slope Slow water movement Stone content	1.00 1.00 0.86	Very limited Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 0.99
78: Ferguson-----	85	Very limited Slope Slow water movement Stone content	1.00 1.00 0.86	Very limited Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 0.99
79: Flybow-----	40	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
80: Flybow-----	40	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
81: Flycreek-----	65	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Slow water movement Too steep for sprinkler irrigation Too acid	1.00 1.00 0.94 0.50 0.42
Flyvalley-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.31	Very limited Depth to bedrock Too steep for surface application Too acid Too steep for sprinkler irrigation	1.00 1.00 0.67 0.50
82: Freels-----	85	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Not limited	
83: Geisercreek-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.94
84: Gelsinger-----	85	Very limited Slow water movement Slope	1.00 0.12	Somewhat limited Slow water movement Too steep for surface application	0.96 0.32
85: Gelsinger-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.96

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
86: Getaway-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
87: Getaway-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
88: Getaway-----	45	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
Anatone-----	30	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
89: Getaway-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
89: Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
90: Getaway-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 1.00 0.61 0.15
Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
91: Getaway-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 1.00 0.61 0.15
Harlow-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Rock outcrop-----	15	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
92: Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 1.00 0.61 0.15
Linecreek-----	30	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
93: Getaway-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Depth to bedrock Slow water movement	1.00 1.00 1.00 0.99 0.61 0.15
Snell-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.44	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
94: Gwin-----	55	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.88 0.08	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.50 0.21
Kettenbach-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.21
Rock outcrop-----	10	Not rated		Not rated	
95: Gwin-----	55	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.88 0.08	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.50 0.21
Kettenbach-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.21
Rock outcrop-----	10	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
96: Gwin-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.88 0.08	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.50 0.21
Klickson-----	30	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Kettenbach-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.21
97: Gwinly-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.96
Kettenbach-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.21
Rock outcrop-----	10	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
98: Gwinly-----	40	Very limited Slow water movement Depth to bedrock Cobble content Slope	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.96
Mallory-----	35	Very limited Slow water movement Depth to bedrock Cobble content Slope Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.96
99: Gwinly-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Mallory-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
100: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
100: Mallory-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Kettenbach-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.21
101: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Mallory-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Kettenbach-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
102: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.96
Mallory-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Kettenbach-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.21
103: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.96
Mallory-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Rock outcrop-----	25	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
104: Gwinly-----	50	Very limited Slow water movement Depth to bedrock Cobble content Slope	1.00 1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50
Rockly-----	35	Very limited Depth to bedrock Slow water movement Cobble content Slope	1.00 1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
105: Gwinly-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Rockly-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
106: Gwinly-----	60	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
106: Sopher-----	25	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 1.00 0.94 0.88
107: Gwinly-----	55	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Sopher-----	25	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 1.00 0.94 0.88
Rock outcrop-----	10	Not rated		Not rated	
108: Hapludolls, frigid--	35	Very limited Depth to saturated zone Slow water movement Stone content	1.00 0.69 0.63	Somewhat limited Depth to saturated zone	0.86
Endoaquolls, frigid	30	Very limited Depth to saturated zone Stone content Cobble content Slow water movement Flooding	1.00 1.00 0.88 0.69 0.60	Very limited Depth to saturated zone Flooding	1.00 0.60
Endoaquents, frigid	20	Very limited Depth to saturated zone Cobble content Stone content Slow water movement Flooding	1.00 0.97 0.73 0.61 0.60	Very limited Depth to saturated zone Flooding	1.00 0.60



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
109: Harl-----	40	Very limited Slope Slow water movement Stone content Cobble content	1.00 1.00 0.98 0.80	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.21
Anatone-----	30	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	15	Not rated		Not rated	
110: Harl-----	45	Very limited Slope Slow water movement Stone content Cobble content	1.00 1.00 0.98 0.80	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.21
Anatone-----	30	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
111: Harl-----	45	Very limited Slope Slow water movement Stone content Cobble content	1.00 1.00 0.98 0.80	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
111: Getaway-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
112: Harl-----	50	Very limited Slope Slow water movement Stone content Cobble content	1.00 1.00 0.98 0.80	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.21
Limberjim-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 0.26 0.14	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
113: Harlow-----	60	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50
Bocker-----	25	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
114: Harlow-----	60	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Bocker-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
115: Harlow-----	45	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Bocker-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
116: Harlow-----	50	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
116: Bocker-----	35	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
117: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Bocker-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
118: Harlow-----	40	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50
Imnaha-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
119: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Imnaha-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
120: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Imnaha-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
121: Harlow-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
121: Klicker-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
122: Harlow-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Klicker-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
123: Harlow-----	35	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50
Snell-----	25	Very limited Slow water movement Depth to bedrock Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.50 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
123: Imnaha-----	25	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.50
124: Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Snell-----	25	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 1.00 0.21
Imnaha-----	25	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
125: Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
125: Snell-----	25	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Imnaha-----	25	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
126: Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Snell-----	25	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Rock outcrop-----	25	Not rated		Not rated	
127: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
127: Tamarackcanyon-----	25	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Linecreek-----	20	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
128: Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Tamarackcanyon-----	25	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Olot-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
129: Harlow-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Threebuck-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.27 0.04	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock Too acid	1.00 1.00 0.96 0.71 0.14
130: Hershal-----	85	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Depth to saturated zone Flooding	1.00 1.00 0.60
131: Hershal-----	50	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Depth to saturated zone Flooding	1.00 1.00 0.60
Voats-----	35	Very limited Depth to saturated zone Slow water movement Cobble content Flooding Stone content	1.00 1.00 0.87 0.60 0.12	Very limited Filtering capacity Flooding	1.00 0.60
132: Hershal-----	35	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Depth to saturated zone Flooding	1.00 1.00 0.60
Voats-----	30	Very limited Depth to saturated zone Slow water movement Cobble content Flooding Stone content	1.00 1.00 0.87 0.60 0.12	Very limited Filtering capacity Flooding	1.00 0.60

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
132: Veazie-----	20	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Flooding	1.00 0.60
133: Howmeadows-----	50	Very limited Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 1.00	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 1.00
Wilkins-----	35	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Slow water movement	1.00 1.00
134: Hurwal-----	90	Very limited Slow water movement Slope	1.00 0.12	Somewhat limited Too steep for surface application Slow water movement Too acid	0.32 0.21 0.03
135: Hurwal-----	90	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.21 0.03
136: Hurwal, deep-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock	1.00 1.00 0.21 0.01
137: Hurwal, deep-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock	1.00 1.00 0.21 0.01

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
138: Hurwal-----	90	Very limited Slow water movement Slope	1.00 0.12	Somewhat limited Too steep for surface application Slow water movement Too acid	0.32 0.21 0.03
139: Hurwal-----	90	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.21 0.03
140: Hurwal-----	90	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.21 0.03
141: Imnaha-----	55	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
142: Imnaha-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
142: Imhaha, moist-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 0.10 0.06	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
143: Imnaha-----	40	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Bocker-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
Clearline-----	20	Very limited Slope Depth to bedrock Cobble content Slow water movement Stone content	1.00 1.00 0.34 0.31 0.08	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Filtering capacity	1.00 1.00 0.08 0.01
144: Imnaha-----	45	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
144: Cherrycreek-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface Depth to bedrock	1.00 1.00 0.87 0.50 0.18
Anatone-----	15	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
145: Imnaha-----	40	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Clearline-----	30	Very limited Slope Depth to bedrock Cobble content Slow water movement Stone content	1.00 1.00 0.34 0.31 0.08	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Filtering capacity	1.00 1.00 0.08 0.01
Rock outcrop-----	15	Not rated		Not rated	
146: Imnaha-----	45	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
146: Cherrycreek-----	20	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface Depth to bedrock	1.00 1.00 0.87 0.50 0.18
147: Josset-----	85	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Flooding Depth to saturated zone	1.00 0.60 0.43
148: Kahler-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
149: Kahler-----	40	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
150: Kahler-----	35	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Linecreek-----	30	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
Getaway-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
151: Kahler-----	35	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Linecreek-----	35	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
Getaway-----	15	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
152: Klicker-----	85	Very limited Slow water movement Depth to bedrock Cobble content Slope	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Large stones on the surface Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.99 0.50 0.21
153: Klicker-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
154: Klicker-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
155: Klicker-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
156: Klicker-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
157: Klicker-----	50	Very limited Slow water movement Depth to bedrock Cobble content Slope	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Large stones on the surface Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.99 0.50 0.21
Anatone-----	35	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50 0.50
158: Klicker-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
159: Klicker-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
159: Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	 1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	 1.00 1.00 1.00 1.00 0.50
160: Klicker-----	35	Very limited Slow water movement Depth to bedrock Cobble content Slope	 1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Large stones on the surface Too steep for sprinkler irrigation Slow water movement	 1.00 1.00 0.99 0.22 0.21
Fivebit-----	30	Very limited Slow water movement Depth to bedrock Slope Cobble content	 1.00 1.00 1.00 0.04	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	 1.00 1.00 0.22 0.22
Anatone-----	20	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	 1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Cobble content Too steep for sprinkler irrigation	 1.00 1.00 1.00 0.50 0.22
161: Klicker-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	 1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	 1.00 1.00 1.00 0.99 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
161: Fivebit-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.04	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.22
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
162: Klicker-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
163: Klicker-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
163: Kamela-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content	 1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	 1.00 1.00  1.00
Fivebit-----	15	Very limited Slope Slow water movement Depth to bedrock Cobble content	 1.00 1.00 1.00 0.04	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	 1.00 1.00  1.00 0.22
164: Klicker-----	55	Very limited Slope Slow water movement Depth to bedrock Cobble content	 1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	 1.00 1.00  1.00 0.21 0.03
Olot-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	 1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	 1.00 1.00  1.00 0.21
165: Klicker-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	 1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	 1.00 1.00  1.00 0.21 0.03



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
165: Thirstygulch-----	30	Very limited Slope Depth to bedrock Stone content Cobble content Slow water movement	1.00 1.00 1.00 0.93 0.32	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
166: Klicker-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 1.00 0.21 0.03
Thirstygulch-----	30	Very limited Slope Depth to bedrock Stone content Cobble content Slow water movement	1.00 1.00 1.00 0.93 0.32	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
167: Klicker-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21
Rock outcrop-----	25	Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
168: Klickson-----	35	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Anatone-----	25	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Larabee-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
169: Klickson-----	35	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Anatone-----	25	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
Larabee-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
170: Klickson-----	60	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Larabee-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
171: Klickson-----	35	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
171: Larabee-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Volstead-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.21
172: Langrell-----	85	Very limited Slow water movement Cobble content Stone content	1.00 0.99 0.20	Not limited	
173: Langrell-----	50	Very limited Slow water movement Cobble content Stone content	1.00 0.99 0.20	Not limited	
Snow-----	35	Very limited Slow water movement	1.00	Not limited	
174: Larabee-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Getaway-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
174: Klickson-----	20	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
175: Larabee-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Klickson-----	30	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Volstead-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.21
176: Larabee-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Klickson-----	30	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.99 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
176: Volstead-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.21
177: Larabee-----	45	Very limited Slow water movement Depth to bedrock Slope Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.22 0.21
Melhorn-----	40	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 0.22 0.21
178: Larabee-----	45	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Volstead-----	40	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
179: Laufer-----	50	Very limited Slow water movement Depth to bedrock Cobble content Slope Stone content	1.00 1.00 1.00 1.00 0.69	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.50 0.21
Thiessen-----	35	Very limited Slow water movement Depth to bedrock Slope Cobble content	1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Slow water movement Cobble content Too steep for sprinkler irrigation	1.00 1.00 0.94 0.87 0.50
180: Laufer-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.69	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Thiessen-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content	1.00 1.00 1.00 0.94 0.87
181: Laufer-----	45	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.69	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
181: Thiessen-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content	1.00 1.00 1.00 0.94 0.87
182: Laufer-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.69	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Thiessen-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content	1.00 1.00 1.00 0.94 0.87
Rock outcrop-----	15	Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.49	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Large stones on the surface Slow water movement	1.00 1.00 0.88 0.50 0.21
Lawyer-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.49	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.88 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
183: Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
184: Lickskillet-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 1.00 0.99
Dixiejett-----	25	Very limited Slope Slow water movement Depth to bedrock Stone content	1.00 1.00 1.00 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 1.00 0.94 0.21
Rock outcrop-----	20	Not rated		Not rated	
185: Lickskillet-----	40	Very limited Depth to bedrock Slow water movement Cobble content Slope Stone content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Cobble content Too steep for surface application Large stones on the surface Too steep for sprinkler irrigation	1.00 1.00 1.00 0.99 0.50
Doublecreek-----	25	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
185: Rockly-----	20	Very limited Depth to bedrock Slow water movement Cobble content Slope	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
186: Licksillet-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99
Doublecreek-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Rockly-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00
187: Limberjim-----	85	Very limited Depth to bedrock Slow water movement Slope Cobble content Stone content	1.00 1.00 1.00 0.26 0.14	Very limited Too steep for surface application Depth to bedrock Too steep for sprinkler irrigation	1.00 0.99 0.50
188: Limberjim-----	50	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 0.26 0.14	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 0.99

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
188: Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
189: Limberjim-----	60	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 0.26 0.14	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 1.00 0.99
Syrupcreek-----	25	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
190: Limberjim-----	70	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 0.26 0.14	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 1.00 0.99
Syrupcreek-----	15	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
191: Limberjim-----	45	Very limited Depth to bedrock Slow water movement Slope Cobble content Stone content	1.00 1.00 1.00 1.00 0.26 0.14	Very limited Too steep for surface application Depth to bedrock Too steep for sprinkler irrigation	1.00 1.00 0.99 0.22

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
191: Tamara-----	40	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 0.22 0.21 0.14
192: Linecreek-----	55	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
193: Lookingglass-----	85	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.12	Very limited Slow water movement Depth to saturated zone Too steep for surface application	1.00 0.95 0.32
194: Lookingglass-----	85	Very limited Slope Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Too steep for surface application Slow water movement Too steep for sprinkler irrigation Depth to saturated zone	1.00 1.00 1.00 0.95

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
195: Lookingglass, stony	85	Very limited Slow water movement Depth to saturated zone Slope Stone content	1.00 1.00 1.00 0.35	Very limited Large stones on the surface Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation	1.00 1.00 1.00 0.95 0.50
196: Lookingglass, cobbly	60	Very limited Slope Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to saturated zone Cobble content	1.00 1.00 1.00 0.95 0.12
Lookingglass-----	25	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 1.00	Very limited Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation	1.00 1.00 0.95 0.50
197: Lookingglass-----	65	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 1.00	Very limited Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation	1.00 1.00 0.95 0.50
Sopher-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 0.94 0.88

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
198: Lookingglass-----	65	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 1.00	Very limited Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation	1.00 1.00 0.95 0.50
Sopher-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 0.94 0.88
199: Lostine-----	85	Very limited Slow water movement	1.00	Not limited	
200: Mallory-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.96
Lawyer-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.49	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Large stones on the surface Slow water movement	1.00 1.00 1.00 0.88 0.50 0.21



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
201: Mallory-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 0.96
Lawyer-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.49	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Large stones on the surface Slow water movement	1.00 1.00 0.88 0.50 0.21
202: Mallory-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.13	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
Lawyer-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.49	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Large stones on the surface Slow water movement	1.00 1.00 0.88 0.50 0.21
Rock outcrop-----	10	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
203: Matheny-----	35	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock	1.00 1.00 0.88
Linville-----	25	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.43	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Laufer-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 1.00 0.69	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
204: Matterhorn-----	85	Very limited Cobble content Slow water movement Stone content	1.00 0.31 0.06	Very limited Filtering capacity	1.00
205: Minam-----	85	Very limited Slow water movement Slope Stone content	1.00 0.12 0.03	Somewhat limited Too steep for surface application	0.32
206: Minam-----	85	Very limited Slope Slow water movement Stone content	1.00 1.00 0.03	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
207: Minam-----	85	Very limited Slow water movement Slope Stone content	1.00 0.12 0.03	Somewhat limited Too steep for surface application	0.32

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
208: Minam-----	85	Very limited Slope Slow water movement Stone content	1.00 1.00 0.03	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
209: Minam-----	90	Very limited Slow water movement Slope Cobble content Stone content	1.00 1.00 0.14 0.03	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 0.50 0.50
210: Minam-----	90	Very limited Slow water movement Stone content Slope Cobble content	1.00 0.67 0.12 0.01	Very limited Large stones on the surface Too steep for surface application	0.99 0.32
211: Minam-----	90	Very limited Slope Slow water movement Stone content Cobble content	1.00 1.00 0.67 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
212: Minam-----	30	Very limited Slow water movement Slope Stone content	1.00 0.12 0.03	Somewhat limited Too steep for surface application	0.32
Minam, gravelly----	20	Very limited Slow water movement Slope Stone content	1.00 0.12 0.03	Somewhat limited Too steep for surface application	0.32
Endoaquepts-----	40	Very limited Depth to saturated zone Slow water movement Slope	1.00 1.00 0.12	Very limited Depth to saturated zone Too steep for surface application	1.00 0.32
213: Minam, gravelly----	30	Very limited Slope Slow water movement Stone content	1.00 1.00 0.03	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
213: Minam, stony-----	25	Very limited Slope Slow water movement Stone content Cobble content	1.00 1.00 0.67 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
Endoaquepts-----	35	Very limited Slope Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Depth to saturated zone Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
214: Mippon-----	90	Very limited Depth to saturated zone Slow water movement Cobble content	1.00 1.00 0.99	Very limited Filtering capacity	0.99
215: Mountemily-----	45	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.12	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.42
Troutmeadows-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.15	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.14
216: Mountemily-----	45	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.12	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.42
Troutmeadows-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.15	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
217: Mountemily-----	45	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.12	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.42
Troutmeadows-----	40	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.15	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.14
218: Mountemily-----	35	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.12	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.42
Troutmeadows-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.15	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.14
Anatone, cold-----	25	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
219: Needhill-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Too acid	1.00 1.00 0.18 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
219: Parsnip-----	25	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Bocker-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
220: Needhill-----	45	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Too acid	1.00 0.22 0.18 0.14
Zumwalt-----	40	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slow water movement Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.22
221: Olot-----	85	Very limited Slow water movement Depth to bedrock Slope Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.50 0.21
222: Olot-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
223: Olot-----	50	Very limited Slow water movement Depth to bedrock Slope Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.50 0.21
Anatone-----	35	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50 0.50
224: Olot-----	50	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Anatone-----	35	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
225: Parsnip-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Slow water movement	1.00 0.32 0.21
226: Parsnip-----	55	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.22 0.21



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
226: Bocker-----	30	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.22
227: Phys-----	85	Very limited Slow water movement Cobble content Stone content Slope	1.00 1.00 0.68 0.12	Somewhat limited Too steep for surface application Slow water movement Cobble content	0.32 0.21 0.04
228: Phys-----	40	Very limited Slow water movement Slope Cobble content	1.00 1.00 0.96	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 0.50 0.21 0.03
Doublecreek-----	30	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 0.50
Collegecreek-----	20	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 0.50
229: Phys-----	35	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.96	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.21 0.03
Doublecreek-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
229: Collegecreek-----	25	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
230: Powwatka-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Slow water movement	1.00 0.32 0.21
231: Powwatka-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
232: Powwatka-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
233: Powwatka-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
234: Puzzlecreek-----	85	Very limited Slope Depth to bedrock Stone content Slow water movement Cobble content	1.00 1.00 1.00 1.00 0.98	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Too acid	1.00 1.00 1.00 1.00 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
235: Ramo-----	85	Very limited Slow water movement Slope Cobble content	1.00  0.12 0.10	Somewhat limited Slow water movement Too steep for surface application Too acid	0.96  0.32 0.07
236: Ramo-----	85	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.96 0.07
237: Ramo-----	85	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.10	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.96 0.07
238: Ramo-----	50	Very limited Slow water movement Slope Cobble content	1.00 1.00 0.10	Very limited Too steep for surface application Slow water movement Too steep for sprinkler irrigation Too acid	1.00 0.96 0.50 0.07
Conley-----	35	Very limited Slow water movement Slope Depth to saturated zone	1.00 1.00 0.99	Very limited Slow water movement Too steep for surface application Depth to saturated zone Too steep for sprinkler irrigation	1.00 1.00 0.99 0.50
239: Reavis-----	85	Very limited Slow water movement	1.00	Not limited	
240: Redmount-----	85	Very limited Slow water movement	1.00	Not limited	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
241: Redmount-----	85	Very limited Slow water movement Slope	1.00 0.50	Somewhat limited Too steep for surface application	0.68
242: Redmount-----	85	Very limited Slow water movement	1.00	Not limited	
243: Redmount-----	50	Very limited Slow water movement	1.00	Not limited	
Cheval-----	35	Very limited Depth to saturated zone	1.00	Very limited Filtering capacity	1.00
		Slow water movement	1.00	Depth to saturated zone	0.99
		Flooding	0.60	Flooding	0.60
244: Riverwash-----	80	Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Very limited Slope	1.00	Very limited Depth to bedrock	1.00
		Depth to bedrock	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Stone content	1.00	Large stones on the surface	1.00
		Cobble content	0.99	Cobble content	0.50
Fivebit-----	15	Very limited Slope	1.00	Very limited Depth to bedrock	1.00
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
		Cobble content	0.04	Slow water movement	0.22

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
247: Rock outcrop-----	35	Not rated		Not rated	
Anatone-----	30	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Imnaha-----	20	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
248: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 1.00 0.50
Imnaha-----	15	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
249: Rock outcrop-----	50	Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
249: Cherrycreek-----	20	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface Depth to bedrock	1.00 1.00 0.87 0.50 0.18
250: Rock outcrop-----	50	Not rated		Not rated	
Linecreek-----	20	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
Anatone-----	15	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Cobble content	1.00 1.00 1.00 1.00 0.50
251: Rock outcrop-----	45	Not rated		Not rated	
Rockly-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00
Dixiejett-----	20	Very limited Slope Slow water movement Depth to bedrock Stone content	1.00 1.00 1.00 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.94 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
252: Rockly-----	35	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00
Rock outcrop-----	30	Not rated		Not rated	
Copperfield-----	20	Very limited Slope Slow water movement Cobble content	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content Large stones on the surface	1.00 1.00 0.96 0.87 0.50
253: Rockly-----	35	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Lickskillet-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface	1.00 1.00 1.00 1.00 0.99
254: Rondowa-----	90	Very limited Slow water movement Cobble content Slope Stone content	1.00 0.65 0.12 0.01	Somewhat limited Too steep for surface application	0.32
255: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.65 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
256: Rondowa-----	90	Very limited Slow water movement Slope Cobble content Stone content	1.00 1.00 0.83 0.19	Very limited Too steep for surface application Large stones on the surface Too steep for sprinkler irrigation	1.00 0.99 0.50
257: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.83 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
258: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.83 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
259: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.83 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
260: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.83 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
261: Rondowa-----	90	Very limited Slow water movement Slope Cobble content Stone content	1.00 1.00 0.78 0.19	Very limited Too steep for surface application Large stones on the surface Too steep for sprinkler irrigation	1.00 0.99 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
262: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.78 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
263: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.78 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
264: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.78 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
265: Rondowa-----	90	Very limited Slope Slow water movement Cobble content Stone content	1.00 1.00 0.78 0.19	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface	1.00 1.00 0.99
266: Rubble land-----	70	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
267: Sag-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.96

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
268: Sag-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.96
269: Sag-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.96
270: Schrier-----	85	Very limited Slow water movement Slope	1.00 0.12	Somewhat limited Too steep for surface application	0.32
271: Schrier-----	55	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Almota-----	30	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
272: Schrier-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Almota-----	25	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
273: Schuelke-----	55	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Schrier-----	15	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Rockly-----	15	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Cobble content Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
274: Silverlake-----	85	Very limited Slow water movement Depth to cemented pan	1.00 1.00	Somewhat limited Depth to cemented pan Slow water movement	0.96 0.96
275: Slicklog-----	85	Very limited Slope Slow water movement Stone content	1.00 1.00 0.52	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.14
276: Slicklog-----	50	Very limited Slope Slow water movement Stone content	1.00 1.00 0.52	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.14
Eastpine-----	35	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.93	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
277: Slicklog-----	55	Very limited Slope Slow water movement Stone content	1.00 1.00 0.52	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.14
Eastpine-----	20	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.93	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
278: Slicklog-----	50	Very limited Slope Slow water movement Stone content	1.00 1.00 0.52	Very limited Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.14
Wintercanyon-----	25	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.14
Rock outcrop-----	10	Not rated		Not rated	
279: Snell-----	85	Very limited Slow water movement Depth to bedrock Stone content Cobble content Slope	1.00 1.00 1.00 0.28 0.12	Very limited Depth to bedrock Too steep for surface application Slow water movement	1.00 0.32 0.21
280: Snell-----	65	Very limited Slow water movement Depth to bedrock Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.50 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
280: Harlow-----	25	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50
281: Snell-----	60	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Harlow-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
282: Snell-----	50	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Harlow-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
283: Snell-----	55	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Harlow-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
284: Snell-----	65	Very limited Slow water movement Depth to bedrock Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.28	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.22 0.21
Harlow-----	25	Very limited Slow water movement Depth to bedrock Slope Cobble content	1.00 1.00 1.00 0.83	Very limited Depth to bedrock Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 0.96 0.22
285: Snell-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
285: Harlow-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Imnaha-----	25	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
286: Snell-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.21
Harlow-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
Imnaha-----	25	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
287: Snell-----	40	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	 1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	 1.00 1.00 1.00 1.00 0.21
Harlow-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	 1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	 1.00 1.00 1.00 1.00 0.96
Rock outcrop-----	15	Not rated		Not rated	
288: Snell-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	 1.00 1.00 1.00 1.00 0.49	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Too steep for sprinkler irrigation Slow water movement	 1.00 1.00 1.00 1.00 0.21
Imnaha-----	25	Very limited Slope Depth to bedrock Slow water movement	 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
289: Snow-----	85	Very limited Slow water movement	 1.00	Not limited	

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
290: Sopher-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 1.00 0.94 0.88
291: Sopher-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 1.00 0.94 0.88
292: Sopher-----	60	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 1.00 0.94 0.88
Gwinly-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
293: Sopher-----	50	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 1.00 0.94 0.88

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
293: Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
294: Sopher-----	50	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement Depth to bedrock	1.00 1.00 1.00 1.00 0.94 0.88
Gwinly-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
295: Sturgill-----	85	Very limited Slow water movement Depth to saturated zone Flooding	1.00 1.00 1.00 0.60	Very limited Depth to saturated zone Flooding Slow water movement	1.00 0.60 0.21
296: Sturgill-----	45	Very limited Slow water movement Depth to saturated zone Flooding	1.00 1.00 1.00 0.60	Very limited Depth to saturated zone Flooding Slow water movement	1.00 0.60 0.21
Eggleson-----	40	Very limited Depth to saturated zone Slow water movement Cobble content	1.00 1.00 1.00 0.66	Very limited Filtering capacity Depth to saturated zone	0.99 0.86

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
297: Sweitberg-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00  1.00 0.12	Very limited Depth to bedrock Slow water movement Too steep for surface application	1.00 0.96 0.32
298: Sweitberg-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.96
299: Sweiting-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Slow water movement Too steep for sprinkler irrigation Too acid	1.00 1.00 0.96 0.50 0.14
300: Sweiting-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
301: Sweiting-----	50	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Slow water movement Too steep for sprinkler irrigation Too acid	1.00 1.00 0.96 0.50 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
301: Harlow-----	40	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50
302: Sweiting-----	50	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Harlow-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
303: Sweiting-----	50	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Klicker-----	40	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 0.99 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
304: Syrupcreek-----	85	Very limited Depth to bedrock Slow water movement Slope Stone content Cobble content	1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.22
305: Syrupcreek-----	60	Very limited Depth to bedrock Slow water movement Slope Stone content Cobble content	1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.22
Anatone-----	25	Very limited Depth to bedrock Slow water movement Stone content Slope Cobble content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Cobble content Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50 0.22
306: Syrupcreek-----	60	Very limited Depth to bedrock Slow water movement Slope Stone content Cobble content	1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.50
Lowerbluff-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.31	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.50 0.42
307: Syrupcreek-----	55	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
307: Tamara-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.21 0.14
308: Syrupcreek-----	65	Very limited Slope Depth to bedrock Slow water movement Stone content Cobble content	1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Tamara-----	20	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 0.21 0.14
309: Tamara-----	65	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 0.22 0.21 0.14
Sherod-----	20	Very limited Slow water movement Depth to saturated zone Depth to bedrock Cobble content	1.00 1.00 1.00 0.44	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 0.96
310: Tamara-----	45	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 0.22 0.21 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
310: Syrupcreek-----	40	Very limited Depth to bedrock Slow water movement Slope Stone content Cobble content	1.00 1.00 1.00 0.02 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.22
311: Tamarackcanyon-----	40	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Linecreek-----	25	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
312: Tamarackcanyon-----	65	Very limited Slow water movement Depth to bedrock Slope Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Slow water movement Too steep for sprinkler irrigation Too acid	1.00 1.00 0.96 0.50 0.14
Lowerbluff-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.31	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.50 0.42

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
313: Tamarackcanyon-----	40	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Olot-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
314: Tamarackcanyon-----	40	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Olot-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
314: Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
315: Tannahill-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.67	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Large stones on the surface Slow water movement	1.00 1.00 1.00 0.61 0.50 0.22
Schrier-----	35	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 1.00 0.67	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Large stones on the surface Slow water movement	1.00 1.00 1.00 0.61 0.50 0.22
Schuelke-----	30	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
316: Lickskillet-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content Stone content	 1.00 1.00 1.00 1.00 0.99	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Cobble content Large stones on the surface	 1.00 1.00 1.00 1.00 0.99
317: Thiessen-----	85	Very limited Slope Slow water movement Depth to bedrock Cobble content	 1.00 1.00 1.00 0.97	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Cobble content	 1.00 1.00 1.00 0.94 0.87
318: Threebuck-----	70	Very limited Slow water movement Depth to bedrock Slope Stone content Cobble content	 1.00 1.00 1.00 0.27 0.04	Very limited Too steep for surface application Slow water movement Depth to bedrock Too steep for sprinkler irrigation Too acid	 1.00 0.96 0.71 0.50 0.14
Harlow-----	15	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	 1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	 1.00 1.00 1.00 0.96 0.50
319: Threebuck-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	 1.00 1.00 1.00 0.27 0.04	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock Too acid	 1.00 1.00 0.96 0.71 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
319: Linecreek-----	30	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00  1.00 0.99
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00  1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 1.00 0.96
320: Threebuck-----	50	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00  1.00 0.27 0.04	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock Too acid	1.00 1.00 1.00 0.96 0.71 0.14
Tamarackcanyon-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00  1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 1.00 0.96 0.14
321: Threebuck-----	50	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00  1.00 0.27 0.04	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock Too acid	1.00 1.00 1.00 0.96 0.71 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
321: Tamarackcanyon-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
322: Threebuck-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.27 0.04	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock Too acid	1.00 1.00 0.96 0.71 0.14
Tamarackcanyon-----	30	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Harlow-----	20	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Large stones on the surface Slow water movement	1.00 1.00 1.00 1.00 0.96
323: Threebuck-----	35	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.27 0.04	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement Depth to bedrock Too acid	1.00 1.00 0.96 0.71 0.14



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
323: Tamarackcanyon-----	30	Very limited Slope Slow water movement Depth to bedrock Stone content Cobble content	1.00 1.00 1.00 0.90 0.32	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement Too acid	1.00 1.00 1.00 0.96 0.14
Linecreek-----	20	Very limited Slope Cobble content Stone content Slow water movement	1.00 0.94 0.36 0.31	Very limited Cobble content Too steep for surface application Too steep for sprinkler irrigation Filtering capacity	1.00 1.00 1.00 0.99
324: Tippett-----	70	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Slow water movement Depth to bedrock	1.00 0.32
Harlow-----	20	Very limited Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Slow water movement	1.00 1.00 0.96
325: Tippett-----	70	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Slow water movement Depth to bedrock	1.00 0.32
Zumwalt-----	20	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slow water movement	1.00 1.00
326: Tolo-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 0.50 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
327: Tolo-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
328: Tolo, fan-----	85	Very limited Slow water movement Slope Cobble content	1.00 1.00 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 0.50 0.21
329: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
330: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
331: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
332: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.99	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.15
333: Tolo-----	50	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 0.50 0.21
Olott-----	35	Very limited Slow water movement Depth to bedrock Slope Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.50 0.21

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
334: Tolo-----	55	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.21
Olot-----	30	Very limited Slope Slow water movement Depth to bedrock Cobble content	1.00 1.00 1.00 0.01	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
335: Topper-----	85	Very limited Slow water movement Slope	1.00 0.12	Somewhat limited Too steep for surface application	0.32
336: Topper-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
337: Topper-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
338: Topper-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
339: Troutmeadows-----	65	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 0.15	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 0.50 0.14

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
339: Crawfish-----	20	Very limited Depth to bedrock Cobble content Slow water movement Slope	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation Too acid	1.00 1.00 1.00 0.50 0.42
340: Tuckerdowns-----	85	Very limited Slow water movement Slope	1.00 0.12	Somewhat limited Too steep for surface application	0.32
341: Tuckerdowns-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
342: Tuckerdowns-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
343: Vandamine-----	60	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00
Bordengulch-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.22	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
344: Vandamine-----	50	Very limited Slope Slow water movement Cobble content	1.00 1.00 0.01	Very limited Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
344: Bordengulch-----	25	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 0.22	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
345: Veazie-----	85	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Flooding	1.00 0.60
346: Voats-----	50	Very limited Depth to saturated zone Slow water movement Cobble content Flooding Stone content	1.00 1.00 0.87 0.60 0.12	Very limited Filtering capacity Flooding	1.00 0.60
Veazie-----	35	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60	Very limited Filtering capacity Flooding	1.00 0.60
347: Volstead-----	35	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Too steep for surface application Depth to bedrock Too steep for sprinkler irrigation Slow water movement	1.00 0.61 0.22 0.21
Quirk-----	30	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 0.96 0.22
Bocker-----	20	Very limited Depth to bedrock Slow water movement Slope Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.22

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
348: Volstead-----	35	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Depth to bedrock Slow water movement	1.00 1.00 0.61 0.21
Quirk-----	30	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.96
Bocker-----	20	Very limited Slope Depth to bedrock Slow water movement Cobble content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00
349: Wallowa-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 0.50
Bocker-----	40	Very limited Depth to bedrock Slow water movement Cobble content Slope	1.00 1.00 1.00 0.12	Very limited Depth to bedrock Cobble content Too steep for surface application	1.00 1.00 0.32
350: Watama-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.12	Very limited Depth to bedrock Too steep for surface application Slow water movement	1.00 0.32 0.21



Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
351: Watama-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 0.21
352: Watama-----	50	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 1.00 0.50 0.21
Rockly-----	35	Very limited Depth to bedrock Slow water movement Cobble content Slope	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Cobble content Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50
353: Water-----	95	Not rated		Not rated	
354: Wilkins-----	85	Very limited Slow water movement Depth to saturated zone Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60
355: Wilkins-----	55	Very limited Slow water movement Depth to saturated zone Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Slow water movement Flooding	1.00 1.00 0.60
Feaginranch-----	30	Very limited Slow water movement Depth to saturated zone Ponding Flooding	1.00 1.00 1.00 0.60	Very limited Depth to saturated zone Ponding Slow water movement Flooding	1.00 1.00 0.96 0.60

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
356: Wolot-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Too steep for surface application Too steep for sprinkler irrigation Slow water movement	1.00 0.22 0.21
357: Zumwalt-----	65	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.12	Very limited Depth to bedrock Slow water movement Too steep for surface application	1.00 1.00 0.32
Harlow-----	25	Very limited Slow water movement Depth to bedrock Cobble content Slope Stone content	1.00 1.00 0.98 0.12 0.02	Very limited Depth to bedrock Large stones on the surface Slow water movement Too steep for surface application	1.00 1.00 0.96 0.32
358: Zumwalt-----	65	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 1.00
Harlow-----	25	Very limited Slope Slow water movement Depth to bedrock Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Too steep for surface application Large stones on the surface Too steep for sprinkler irrigation Slow water movement	1.00 1.00 1.00 1.00 0.96
359: Zumwalt-----	65	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slow water movement Too steep for surface application Too steep for sprinkler irrigation	1.00 1.00 1.00 0.50

Table 6b.--Agricultural Disposal of Wastewater by Rapid Infiltration  
and Slow Rate Treatment--Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
359: Harlow-----	20	Very limited Slow water movement Depth to bedrock Slope Cobble content Stone content	1.00 1.00 1.00 0.98 0.02	Very limited Depth to bedrock Large stones on the surface Too steep for surface application Slow water movement Too steep for sprinkler irrigation	1.00 1.00 1.00 0.96 0.50

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities

(Composition of forest understory based on percent canopy cover; composition of range sites based on percent weight)

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
1: Akerite-----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY) (CWS811)	---	---	Grand fir Grouse blueberry Pinegrass Douglas fir Engelmann spruce Elk sedge Heartleaf arnica Prince's pine Shinyleaf spirea	40 25 20 10 10 5 5 5 5	
2: Akerite-----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY) (CWS811)	---	---	Grand fir Grouse blueberry Pinegrass Douglas fir Engelmann spruce Elk sedge Heartleaf arnica Prince's pine Shinyleaf spirea	40 25 20 10 10 5 5 5 5	
3: Albee-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
4: Albee-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
5: Analulu-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Slicklog-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Bluecanyon-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
6: Analulu-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Slicklog-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Rock outcrop.						
7: Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
8: Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
9: Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
10: Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
Fivebit-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
11:						
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable	1,000	Bluebunch wheatgrass		70
		Normal	700	Idaho fescue		20
		Unfavorable	400	Arrowleaf balsamroot		5
				Buckwheat		5
Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable	1,000	Bluebunch wheatgrass		70
		Normal	700	Idaho fescue		20
		Unfavorable	400	Arrowleaf balsamroot		5
				Buckwheat		5
Fivebit-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine	40	
				Common snowberry	30	
				Pinegrass	20	
				Elk sedge	10	
				Shinyleaf spirea	10	
				Heartleaf arnica	5	
12:						
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable	1,500	Idaho fescue		55
		Normal	1,000	Bluebunch wheatgrass		25
		Unfavorable	700	Sandberg bluegrass		5
Cherrycreek----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable	3,000	Mallow ninebark		60
		Normal	2,500	Common snowberry		15
		Unfavorable	2,000	Saskatoon serviceberry		10
				Rose		10
				Idaho fescue		5
Imnaha-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable	3,000	Mallow ninebark		60
		Normal	2,500	Common snowberry		15
		Unfavorable	2,000	Saskatoon serviceberry		10
				Rose		10
				Idaho fescue		5
13:						
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable	1,500	Idaho fescue		55
		Normal	1,000	Bluebunch wheatgrass		25
		Unfavorable	700	Sandberg bluegrass		5
Imnaha-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable	3,000	Mallow ninebark		60
		Normal	2,500	Common snowberry		15
		Unfavorable	2,000	Saskatoon serviceberry		10
				Rose		10
				Idaho fescue		5
Rock outcrop.						
14:						
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable	1,000	Bluebunch wheatgrass		70
		Normal	700	Idaho fescue		20
		Unfavorable	400	Arrowleaf balsamroot		5
				Buckwheat		5
Kamela-----	GRAND FIR/PINEGRASS (CWG112)	---	---	Pinegrass	50	
				Grand fir	40	
				Elk sedge	15	
				Douglas fir	10	
				Heartleaf arnica	10	
				Ponderosa pine	10	
15:						
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable	1,000	Bluebunch wheatgrass		70
		Normal	700	Idaho fescue		20
		Unfavorable	400	Arrowleaf balsamroot		5
				Buckwheat		5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
15: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Rock outcrop.						
16: Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Rock outcrop.						
17: Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
18: Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Rock outcrop.						
Clearline-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
19: Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Rock outcrop.						
Fivebit-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
20: Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Rock outcrop.						
Imnaha-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
21: Balm-----	MEADOW (R010XY004OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Tufted hairgrass Sedge Rush Bluegrass		65 20 8 5
Catherine-----	MEADOW (R010XY004OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Tufted hairgrass Sedge Rush Bluegrass		65 20 8 5
22: Bittercreek----	MOUNTAIN MEADOW (R010XY002OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Tufted hairgrass Bluegrass Rush Willow		60 5 5 5
Mippon-----	SPRUCE-COTTONWOOD (R043XY605OR)	---	---	Engelmann spruce Cottonwood Rose Rocky Mountain juniper Currant Ponderosa pine Sedge Thinleaf alder Water birch	40 15 8 5 5 5 5 5 5	
23: Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
24: Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Rock outcrop.						
25: Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Rock outcrop.						

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
26: Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Clearline-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Rock outcrop.						
27: Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Rock outcrop.						
28: Bridgewater----	COTTONWOOD-WILLOW-RIPARIAN (R010XY011OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Willow Basin wildrye Cottonwood Alder Sedge Hawthorn Rose Rush		25 20 20 8 8 5 5 5
29: Btree-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Flycreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
30: Btree-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
30: Flycreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
31: Btree-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Flycreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
32: Btree-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Flycreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
33: Btree-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
33: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
34: Bucketlake-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
35: Bucketlake-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
36: Buford-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
37: Buford-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
38: Bunchpoint-----	PONDEROSA PINE/IDAHO FESCUE (CPG112)	---	---	Ponderosa pine Idaho fescue Bluebunch wheatgrass	30 25 10	
39: Bunchpoint-----	PONDEROSA PINE/IDAHO FESCUE (CPG112)	---	---	Ponderosa pine Idaho fescue Bluebunch wheatgrass	30 25 10	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
39: Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
40: Chard-----	LOAMY BENCH 10-15 PZ (R009XY050OR)	Favorable Normal Unfavorable	1,200 1,000 800	Bluebunch wheatgrass Sand dropseed		80 15
41: Cherrycreek----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Imnaha-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
42: Cherrycreek----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Imnaha-----	NORTH 14-17 PZ (R009XY040OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Imnaha, moist---	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
43: Cherrycreek----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Imnaha-----	NORTH 14-17 PZ (R009XY040OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Rock outcrop.						
44: Cherrycreek----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Limberjim-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Rock outcrop.						

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
45: Chesnimnus-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
46: Chesnimnus-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
47: Cheval-----	MOUNTAIN MEADOW (R010XY002OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Tufted hairgrass Bluegrass Rush Willow		60 5 5 5
48: Cloverland-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
49: Cloverland-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
50: Conley-----	LOAMY BOTTOM (R010XY005OR)	Favorable Normal Unfavorable	7,000 5,000 4,000	Basin wildrye Bluebunch wheatgrass Bluegrass Willow		85 5 5 5
51: Conley-----	LOAMY BOTTOM (R010XY005OR)	Favorable Normal Unfavorable	7,000 5,000 4,000	Basin wildrye Bluebunch wheatgrass Bluegrass Willow		85 5 5 5
52: Copperfield-----	LOW ELEVATION DEEP NORTH 14-17 PZ (R009XY043OR)	Favorable Normal Unfavorable	2,300 1,800 1,300	Idaho fescue Bluebunch wheatgrass Common snowberry Rose		40 30 15 5
Thiessen-----	LOW ELEVATION NORTH 14-17 PZ (R009XY042OR)	Favorable Normal Unfavorable	2,000 1,600 1,200	Idaho fescue Bluebunch wheatgrass		50 40
53: Copperfield-----	LOW ELEVATION DEEP NORTH 14-17 PZ (R009XY043OR)	Favorable Normal Unfavorable	2,300 1,800 1,300	Idaho fescue Bluebunch wheatgrass Common snowberry Rose		40 30 15 5
Thiessen-----	LOW ELEVATION NORTH 14-17 PZ (R009XY042OR)	Favorable Normal Unfavorable	2,000 1,600 1,200	Idaho fescue Bluebunch wheatgrass		50 40
Rock outcrop.						

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
54: Cowsly-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
55: Cowsly-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
56: Cowsly-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
57: Cowsly, cobbly--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Cowsly-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
58: Cowsly, cobbly--	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Cowsly-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
59: Cowsly-----	GRAND FIR/BLUE HUCKLEBERRY (CWS211)	---	---	Grand fir Blue huckleberry Douglas fir Engelmann spruce Heartleaf arnica Pinegrass Elk sedge Prince's pine Western rattlesnake plantain	40 35 10 10 10 5 5 5	
Howmeadows-----	WET MOUNTAIN SWALE 17-24 PZ (R009XY008OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Tufted hairgrass Sedge Rush Spikerush		70 15 8 5
Sherod-----	MOUNTAIN SWALE 17-24 PZ (R009XY007OR)	Favorable Normal Unfavorable	1,500 1,200 800	California oatgrass Rush Sedge Bluegrass Spikerush Timber oatgrass		30 15 10 8 5 5
60: Demasters-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Snell-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
61: Dixiejett-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Sandberg bluegrass		70 8 5 3
Licksillet-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Rockly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
62: Doublecreek-----	LOAMY NORTH 10-15 PZ (R009XY054OR)	Favorable Normal Unfavorable	1,200 1,000 800	Idaho fescue Bluebunch wheatgrass		60 30
Flybow-----	VERY SHALLOW SOUTH 10-15 PZ (R009XY053OR)	Favorable Normal Unfavorable	400 200 100	Buckwheat Bluebunch wheatgrass Sand dropseed		50 30 5
Rock outcrop.						
63: Doublecreek-----	LOAMY BENCH 10-15 PZ (R009XY050OR)	Favorable Normal Unfavorable	1,200 1,000 800	Bluebunch wheatgrass Sand dropseed		80 15
Langrell-----	FAN 10-15 PZ (R009XY003OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Netleaf hackberry Sand dropseed		60 15 8

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
64: Doublecreek-----	FAN 10-15 PZ (R009XY003OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Netleaf hackberry Sand dropseed		60 15 8
Phys-----	FAN 10-15 PZ (R009XY003OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Netleaf hackberry Sand dropseed		60 15 8
65: Downards-----	GRAND FIR/ROCKY MOUNTAIN MAPLE- NINEBARK (CWS412)	---	---	Grand fir Douglas fir Mallow ninebark Rocky Mountain maple Scouler's willow Creambush oceanspray Disporum Ponderosa pine Redstem ceanothus Starry false Solomon's seal Western larch	40 20 15 5 5 5 5 5 5 5 5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Rock outcrop.						
66: Downards-----	GRAND FIR/ROCKY MOUNTAIN MAPLE- NINEBARK (CWS412)	---	---	Grand fir Douglas fir Creambush oceanspray Rocky Mountain maple Scouler's willow Disporum Mallow ninebark Ponderosa pine Redstem ceanothus Starry false Solomon's seal Western larch	40 20 10 5 5 5 5 5 5 5 5	
Emily-----	PONDEROSA PINE/IDAHO FESCUE (CPG112)	Favorable Normal Unfavorable	1,500 1,000 700	Ponderosa pine Idaho fescue Bluebunch wheatgrass	30 25 10	
Sopher-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
67: Downards-----	GRAND FIR/ROCKY MOUNTAIN MAPLE- NINEBARK (CWS412)	---	---	Grand fir Douglas fir Creambush oceanspray Rocky Mountain maple Scouler's willow Disporum Mallow ninebark Ponderosa pine Redstem ceanothus Starry false Solomon's seal Western larch	40 20 10 5 5 5 5 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
67: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
68: Downards-----	GRAND FIR/ROCKY MOUNTAIN MAPLE- NINEBARK (CWS412)	---	---	Grand fir Douglas fir Creambush oceanspray Rocky Mountain maple Scouler's willow Disporum Mallow ninebark Ponderosa pine Redstem ceanothus Starry false Solomon's seal Western larch	40 20 10 5 5 5 5 5 5 5 5	
Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
69: Downeygulch----	GRAND FIR/PINEGRASS (CWG112)	---	---	Pinegrass Grand fir Elk sedge Douglas fir Heartleaf arnica Ponderosa pine	50 40 15 10 10 10	
Lowerbluff-----	GRAND FIR/PINEGRASS (CWG112)	---	---	Pinegrass Grand fir Elk sedge Douglas fir Heartleaf arnica Ponderosa pine	50 40 15 10 10 10	
70: Downeygulch----	GRAND FIR/PINEGRASS (CWG112)	---	---	Pinegrass Grand fir Elk sedge Douglas fir Heartleaf arnica Ponderosa pine	50 40 15 10 10 10	
Thirstygulch----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
71: Eggleson-----	SPRUCE-COTTONWOOD (R043XY6050R)	---	---	Engelmann spruce Cottonwood Rose Rocky Mountain juniper Currant Ponderosa pine Sedge Thinleaf alder Water birch	40 15 8 5 5 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			<i>Lb/acre</i>		<i>Pct</i>	<i>Pct</i>
72: Emily-----	PONDEROSA PINE/ELK SEDGE (CPG222)	---	---	Elk sedge Ponderosa pine Idaho fescue Bluebunch wheatgrass	50 40 20 5	
Wolot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
73: Endoaquolls, mesic-----	WET MOUNTAIN MEADOW (R010XY0010R)	Favorable Normal Unfavorable	2,500 1,500 1,000	Sedge Tufted hairgrass Rush		70 20 5
74: Ferguson-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
75: Ferguson-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
76: Ferguson-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
77: Ferguson-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
78: Ferguson-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
79: Flybow-----	VERY SHALLOW SOUTH 10-15 PZ (R009XY053OR)	Favorable Normal Unfavorable	400 200 100	Buckwheat Bluebunch wheatgrass Sand dropseed		50 30 5
	Rubble land.					
	Rock outcrop.					
80: Flybow-----	VERY SHALLOW SOUTH 10-15 PZ (R009XY053OR)	Favorable Normal Unfavorable	400 200 100	Buckwheat Bluebunch wheatgrass Sand dropseed		50 30 5
	Rubble land.					
	Rock outcrop.					
81: Flycreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
	Flyvalley-----	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
82: Freels-----	MOUNTAIN LOAMY BOTTOM (R010XY006OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Basin wildrye Willow Idaho fescue Bluegrass		70 20 5 5
83: Geisercreek----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
84: Gelsinger-----	FAN 14-17 PZ (R009XY004OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Basin wildrye Bluebunch wheatgrass Idaho fescue		60 25 10

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
85: Gelsinger-----	FAN 14-17 PZ (R009XY004OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Basin wildrye Bluebunch wheatgrass Idaho fescue		60 25 10
86: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
87: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
88: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Rock outcrop.						
89: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
90: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
91: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Rock outcrop.						
92: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
93: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Snell-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
94: Gwin-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Kettenbach-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Sandberg bluegrass		70 8 5 3
Rock outcrop.						



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
95: Gwin-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Kettenbach-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Sandberg bluegrass		70 8 5 3
Rock outcrop.						
96: Gwin-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Kettenbach-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot		80 8 5
97: Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Kettenbach-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable Normal Unfavorable	2,200 1,800 1,400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot		80 8 5
Rock outcrop.						
98: Gwinly-----	SHALLOW CLAYEY 17-22 PZ (R009XY021OR)	Favorable Normal Unfavorable	1,100 800 400	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		65 30 5
Mallory-----	CLAYEY 17-22 PZ (R009XY016OR)	Favorable Normal Unfavorable	1,700 1,300 1,000	Idaho fescue Bluebunch wheatgrass		75 25
99: Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Mallory-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable Normal Unfavorable	2,200 1,800 1,400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot		80 8 5
100: Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
100: Mallory-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	2,200	Bluebunch wheatgrass		80
		Normal	1,800	Idaho fescue		8
		Unfavorable	1,400	Arrowleaf balsamroot		5
Kettenbach-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	2,200	Bluebunch wheatgrass		80
		Normal	1,800	Idaho fescue		8
		Unfavorable	1,400	Arrowleaf balsamroot		5
101: Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable	1,200	Bluebunch wheatgrass		75
		Normal	700	Idaho fescue		10
		Unfavorable	400	Sandberg bluegrass		5
				Arrowleaf balsamroot		5
Mallory-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	2,200	Bluebunch wheatgrass		80
		Normal	1,800	Idaho fescue		8
		Unfavorable	1,400	Arrowleaf balsamroot		5
Kettenbach-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	2,200	Bluebunch wheatgrass		80
		Normal	1,800	Idaho fescue		8
		Unfavorable	1,400	Arrowleaf balsamroot		5
102: Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable	1,200	Bluebunch wheatgrass		75
		Normal	700	Idaho fescue		10
		Unfavorable	400	Sandberg bluegrass		5
				Arrowleaf balsamroot		5
Mallory-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	2,200	Bluebunch wheatgrass		80
		Normal	1,800	Idaho fescue		8
		Unfavorable	1,400	Arrowleaf balsamroot		5
Kettenbach-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	2,200	Bluebunch wheatgrass		80
		Normal	1,800	Idaho fescue		8
		Unfavorable	1,400	Arrowleaf balsamroot		5
103: Gwinly-----	SHALLOW CLAYEY 17-22 PZ (R009XY021OR)	Favorable	1,200	Idaho fescue		65
		Normal	700	Bluebunch wheatgrass		30
		Unfavorable	400	Sandberg bluegrass		5
Mallory-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	2,200	Bluebunch wheatgrass		80
		Normal	1,800	Idaho fescue		8
		Unfavorable	1,400	Arrowleaf balsamroot		5
Rock outcrop.						
104: Gwinly-----	SOUTH 17-22 PZ (R009XY030OR)	Favorable	1,100	Bluebunch wheatgrass		65
		Normal	800	Idaho fescue		30
		Unfavorable	400	Sandberg bluegrass		5
Rockly-----	VERY SHALLOW 14-18 PZ (R009XY025OR)	Favorable	600	Sandberg bluegrass		45
		Normal	400	Bluebunch wheatgrass		25
		Unfavorable	200	Onespike oatgrass		10
				Stiff sagebrush		8
				Biscuitroot		5
105: Gwinly-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable	1,500	Idaho fescue		55
		Normal	1,000	Bluebunch wheatgrass		25
		Unfavorable	700	Sandberg bluegrass		5
Rockly-----	SHALLOW NORTH 10-15 PZ (R009XY055OR)	Favorable	600	Bluebunch wheatgrass		70
		Normal	400	Idaho fescue		20
		Unfavorable	200			
Rock outcrop.						

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
106: Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY0310R)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Sopher-----	DOUGLAS FIR/OCEANSPRAY (CDS611)	---	---	Douglas fir Ponderosa pine Creambush oceanspray Common snowberry Elk sedge Pinegrass Heartleaf arnica Mallow ninebark Rose Shinyleaf spirea	35 25 20 10 10 10 5 5 5 5	
107: Gwinly-----	SHALLOW NORTH 14+ PZ (R009XY0480R)	Favorable Normal Unfavorable	1,200 700 400	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Sopher-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Rock outcrop.						
108: Hapludolls, frigid-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Endoaquolls, frigid-----	MOUNTAIN MEADOW (R010XY0020R)	Favorable Normal Unfavorable	4,000 3,000 2,000	Tufted hairgrass Bluegrass Rush Willow		60 5 5 5
Endoaquents, frigid-----	MOUNTAIN (THINLEAF) ALDER- REDOSIER DOGWOOD/MESIC FORB (SW2216)	---	---	Thinleaf alder Redosier dogwood Sedge Common cowparsnip Largeleaf avens Rush Tall mannagrass Tufted hairgrass		50 10 10 5 5 5 5 5
109: Harl-----	GRAND FIR/BLUE HUCKLEBERRY (CWS211)	---	---	Grand fir Blue huckleberry Douglas fir Engelmann spruce Heartleaf arnica Pinegrass Elk sedge Prince's pine Western rattlesnake plantain	40 35 10 10 10 10 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
109: Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Rock outcrop.						
110: Harl-----	GRAND FIR/BLUE HUCKLEBERRY (CWS211)	---	---	Grand fir Blue huckleberry Douglas fir Engelmann spruce Heartleaf arnica Pinegrass Elk sedge Prince's pine Western rattlesnake plantain	40 35 10 10 10 10 5 5 5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Rock outcrop.						
111: Harl-----	GRAND FIR/BLUE HUCKLEBERRY (CWS211)	---	---	Grand fir Blue huckleberry Douglas fir Engelmann spruce Heartleaf arnica Pinegrass Elk sedge Prince's pine Western rattlesnake plantain	40 35 10 10 10 10 5 5 5	
Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
112: Harl-----	GRAND FIR/BLUE HUCKLEBERRY (CWS211)	---	---	Grand fir Blue huckleberry Douglas fir Engelmann spruce Heartleaf arnica Pinegrass Elk sedge Prince's pine Western rattlesnake plantain	40 35 10 10 10 10 5 5 5	
Limberjim-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Rock outcrop.						

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
113: Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
114: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
115: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
116: Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
117: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Rock outcrop.						
118: Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Imnaha-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Rock outcrop.						
119: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
119: Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Rock outcrop.						
120: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Rock outcrop.						
121: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
122: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
123: Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Snell-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Imnaha-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
124: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Snell-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
125: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Snell-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
126: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 800 500	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Snell-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Rock outcrop.						
127: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
128: Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
128: Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
129: Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Threebuck-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
130: Hershal-----	MEADOW (R010XY004OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Tufted hairgrass Sedge Rush Bluegrass		65 20 8 5
131: Hershal-----	MEADOW (R010XY004OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Tufted hairgrass Sedge Rush Bluegrass		65 20 8 5
Voats-----	COTTONWOOD-WILLOW-RIPARIAN (R010XY011OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Willow Basin wildrye Cottonwood Alder Sedge Hawthorn Rose Rush		25 20 20 8 8 5 5 5
132: Hershal-----	MEADOW (R010XY004OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Tufted hairgrass Sedge Rush Bluegrass		65 20 8 5
Voats-----	COTTONWOOD-WILLOW-RIPARIAN (R010XY011OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Willow Basin wildrye Cottonwood Alder Sedge Hawthorn Rose Rush		25 20 20 8 8 5 5 5
Veazie-----	COTTONWOOD-WILLOW-RIPARIAN (R010XY011OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Willow Basin wildrye Cottonwood Alder Sedge Hawthorn Rose Rush		25 20 20 8 8 5 5 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
133: Howmeadows-----	WET MOUNTAIN SWALE 17-24 PZ (R009XY008OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Tufted hairgrass Sedge Rush Spikerush		70 15 8 5
Wilkins-----	MOUNTAIN MEADOW (R010XY002OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Tufted hairgrass Bluegrass Rush Willow		60 5 5 5
134: Hurwal-----	MOUNTAIN SWALE 13-17 PZ (R009XY005OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Basin wildrye Idaho fescue Bluebunch wheatgrass		60 25 5
135: Hurwal-----	MOUNTAIN SWALE 13-17 PZ (R009XY005OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Basin wildrye Idaho fescue Bluebunch wheatgrass		60 25 5
136: Hurwal, deep----	DEEP NORTH 14-17 PZ (R009XY041OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Bluebunch wheatgrass Common snowberry Common chokecherry Saskatoon serviceberry Mallow ninebark Rose		60 10 10 6 5 5 3
137: Hurwal, deep----	DEEP NORTH 14-17 PZ (R009XY041OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Bluebunch wheatgrass Common snowberry Common chokecherry Saskatoon serviceberry Mallow ninebark Rose		60 10 10 6 5 5 3
138: Hurwal-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
139: Hurwal-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
140: Hurwal-----	NORTH 17-24 PZ (R009XY045OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Common snowberry Bluebunch wheatgrass Rose Saskatoon serviceberry Mallow ninebark		45 15 10 10 5 5
141: Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
142: Imnaha-----	DEEP NORTH 14-17 PZ (R009XY041OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Common snowberry Bluebunch wheatgrass Rose Saskatoon serviceberry Mallow ninebark		45 15 10 10 5 5
Imnaha, moist---	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
143: Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Bocker-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Clearline-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
144: Imnaha-----	DEEP NORTH 14-17 PZ (R009XY041OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Common snowberry Bluebunch wheatgrass Rose Saskatoon serviceberry Mallow ninebark		45 15 10 10 5 5
Cherrycreek----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
145: Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Clearline-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
Rock outcrop.						
146: Imnaha-----	DEEP NORTH 14-17 PZ (R009XY041OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Common snowberry Bluebunch wheatgrass Rose Saskatoon serviceberry Mallow ninebark		45 15 10 10 5 5
Rock outcrop.						

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
146: Cherrycreek-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
147: Josset-----	MOUNTAIN LOAMY BOTTOM (R010XY006OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Basin wildrye Willow Idaho fescue Bluegrass		70 20 5 5
148: Kahler-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
149: Kahler-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Rock outcrop.						
150: Kahler-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
150: Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
151: Kahler-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
152: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
153: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
154: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
155: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
156: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
157: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
158: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot Buckwheat		70 20 5 5 5
159: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot Buckwheat		70 20 5 5 5
160: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Fivebit-----	PONDEROSA PINE/IDAHO FESCUE (CPG112)	Favorable Normal Unfavorable	1,500 1,000 700	Ponderosa pine Idaho fescue Bluebunch wheatgrass	30 25 10	
Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
161: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Fivebit-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)			Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
162: Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
163: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Kamela-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Fivebit-----	PONDEROSA PINE/IDAHO FESCUE (CPG112)	Favorable Normal Unfavorable	1,500 1,000 700	Ponderosa pine Idaho fescue Bluebunch wheatgrass	30 25 10	
164: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Olot-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
165: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Thirstygulch----	DOUGLAS FIR/PINEGRASS (CDG121)	---	---	Douglas fir Pinegrass Ponderosa pine Elk sedge Heartleaf arnica	40 40 20 15 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
166: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Thirstygulch----	DOUGLAS FIR/PINEGRASS (CDG121)	---	---	Douglas fir Pinegrass Ponderosa pine Elk sedge Heartleaf arnica	40 40 20 15 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
167: Klicker-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Rock outcrop.						
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
168: Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
168: Larabee-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
169: Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Larabee-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
170: Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Larabee-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
171: Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Larabee-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
171: Volstead-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
172: Langrell-----	FAN 14-17 PZ (R009XY004OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Basin wildrye Bluebunch wheatgrass Idaho fescue		60 25 10
173: Langrell-----	FAN 14-17 PZ (R009XY004OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Basin wildrye Bluebunch wheatgrass Idaho fescue		60 25 10
Snow-----	LOAMY BOTTOM (R010XY005OR)	Favorable Normal Unfavorable	7,000 5,000 4,000	Basin wildrye Bluebunch wheatgrass Bluegrass Willow		85 5 5 5
174: Larabee-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
175: Larabee-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
175: Volstead-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
176: Larabee-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Klickson-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Volstead-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
177: Larabee-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Melhorn-----	DOUGLAS FIR/SPIREA (CDS634)	---	---	Douglas fir Shinyleaf spirea Pinegrass Ponderosa pine Elk sedge Common snowberry Heartleaf arnica	40 25 20 20 15 5 5	
178: Larabee-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Volstead-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
179: Laufer-----	SHALLOW CLAYEY 14-17 PZ (R009XY020OR)	Favorable Normal Unfavorable	900 500 300	Idaho fescue Bluebunch wheatgrass		65 30
Thiessen-----	CLAYEY 14-17 PZ (R009XY015OR)	Favorable Normal Unfavorable	1,200 700 400	Idaho fescue Bluebunch wheatgrass		70 15
180: Laufer-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Thiessen-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Sandberg bluegrass		70 8 5 3
181: Laufer-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Thiessen-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Sandberg bluegrass		70 8 5 3
182: Laufer-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Thiessen-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Sandberg bluegrass		70 8 5 3
Rock outcrop.						
183: Lawyer, stony---	NORTH 17-24 PZ (R009XY045OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Common snowberry Bluebunch wheatgrass Rose Saskatoon serviceberry Mallow ninebark		45 15 10 10 5 5
Lawyer-----	NORTH 17-24 PZ (R009XY045OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Common snowberry Bluebunch wheatgrass Rose Saskatoon serviceberry Mallow ninebark		45 15 10 10 5 5
Gwinly-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,200 700 400	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
184: Licksillet----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
184: Dixiejett-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable	1,800	Bluebunch wheatgrass		70
		Normal	1,400	Idaho fescue		8
		Unfavorable	1,100	Arrowleaf balsamroot		5
				Sandberg bluegrass		3
Rock outcrop.						
185: Lickskillet-----	SHALLOW CLAYEY 14-17 PZ (R009XY020OR)	Favorable	900	Idaho fescue		65
		Normal	500	Bluebunch wheatgrass		30
		Unfavorable	300			
Doublecreek-----	LOAMY 14-17 PZ (R009XY010OR)	Favorable	2,000	Idaho fescue		75
		Normal	1,600	Bluebunch wheatgrass		45
		Unfavorable	1,100			
Rockly-----	VERY SHALLOW 14-18 PZ (R009XY025OR)	Favorable	600	Sandberg bluegrass		50
		Normal	400	Bluebunch wheatgrass		20
		Unfavorable	200	Onespike oatgrass		10
				Stiff sagebrush		8
				Biscuitroot		5
186: Lickskillet-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable	1,200	Bluebunch wheatgrass		75
		Normal	700	Idaho fescue		10
		Unfavorable	400	Sandberg bluegrass		5
				Arrowleaf balsamroot		5
Doublecreek-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable	1,800	Bluebunch wheatgrass		70
		Normal	1,400	Idaho fescue		8
		Unfavorable	1,100	Arrowleaf balsamroot		5
				Sandberg bluegrass		3
Rockly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable	1,200	Bluebunch wheatgrass		75
		Normal	700	Idaho fescue		10
		Unfavorable	400	Sandberg bluegrass		5
				Arrowleaf balsamroot		5
187: Limberjim-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir	40	
				Longtube twinflower	20	
				Douglas fir	15	
				Engelmann spruce	10	
				Blue huckleberry	10	
				Prince's pine	5	
				Sedge	5	
				Sidebells shinleaf	5	
				Western rattlesnake plantain	5	
188: Limberjim-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir	40	
				Longtube twinflower	20	
				Douglas fir	15	
				Engelmann spruce	10	
				Blue huckleberry	10	
				Prince's pine	5	
				Sedge	5	
				Sidebells shinleaf	5	
				Western rattlesnake plantain	5	
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable	1,500	Idaho fescue		55
		Normal	1,000	Bluebunch wheatgrass		25
		Unfavorable	700	Sandberg bluegrass		5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
189: Limberjim-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
190: Limberjim-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
191: Limberjim-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Tamara-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
192: Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
193: Lookingglass----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
194: Lookingglass----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
195: Lookingglass, stony-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
196: Lookingglass, cobbly-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Lookingglass----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
197: Lookingglass----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
197: Sopher-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
198: Lookingglass----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Sopher-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
199: Lostine-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
200: Mallory-----	LOW ELEVATION NORTH 14-17 PZ (R009XY042OR)	Favorable Normal Unfavorable	2,000 1,600 1,200	Idaho fescue Bluebunch wheatgrass		50 40
Gwinly-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Lawyer-----	LOW ELEVATION DEEP NORTH 14-17 PZ (R009XY043OR)	Favorable Normal Unfavorable	2,300 1,800 1,300	Idaho fescue Bluebunch wheatgrass Common snowberry Rose		40 30 15 5
201: Mallory-----	LOW ELEVATION NORTH 14-17 PZ (R009XY042OR)	Favorable Normal Unfavorable	2,000 1,600 1,200	Idaho fescue Bluebunch wheatgrass		50 40
Gwinly-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Lawyer-----	LOW ELEVATION DEEP NORTH 14-17 PZ (R009XY043OR)	Favorable Normal Unfavorable	2,300 1,800 1,300	Idaho fescue Bluebunch wheatgrass Common snowberry Rose		40 30 15 5
202: Mallory-----	LOW ELEVATION NORTH 14-17 PZ (R009XY042OR)	Favorable Normal Unfavorable	2,000 1,600 1,200	Idaho fescue Bluebunch wheatgrass		50 40
Lawyer-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Common snowberry Bluebunch wheatgrass Rose Saskatoon serviceberry Mallow ninebark		45 15 10 10 5 5
Rock outcrop.						

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
203: Matheny-----	NORTH 14-17 PZ (R009XY0400R)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Linville-----	NORTH 14-17 PZ (R009XY0400R)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Laufer-----	SHALLOW NORTH 14+ PZ (R009XY0480R)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
204: Matterhorn-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
205: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
206: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
207: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
208: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
209: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
210: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
211: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
212: Minam-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Minam, gravelly-	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Endoaquepts----	WET MOUNTAIN MEADOW (R010XY001OR)	Favorable Normal Unfavorable	2,500 1,500 1,000	Sedge Tufted hairgrass Rush		70 20 5
213: Minam, gravelly-	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Minam, stony----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Endoaquepts----	WET MOUNTAIN MEADOW (R010XY001OR)	Favorable Normal Unfavorable	2,500 1,500 1,000	Sedge Tufted hairgrass Rush		70 20 5
214: Mippon-----	SPRUCE-COTTONWOOD (R043XY605OR)	---	---	Engelmann spruce Cottonwood Rose Rocky Mountain juniper Currant Ponderosa pine Sedge Thinleaf alder Water birch	40 15 8 5 5 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
215: Mountemily-----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5 5	
Troutmeadows----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5 5	
216: Mountemily-----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5 5	
Troutmeadows----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5 5	
217: Mountemily-----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
217: Troutmeadows----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5	
218: Mountemily-----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5	
Troutmeadows----	GRAND FIR/GROUSE HUCKLEBERRY (BLUEBERRY)/TWINFLOWER (CWS812)	---	---	Grand fir Engelmann spruce Grouse blueberry Pinegrass Douglas fir Longtube twinflower Prince's pine Sedge Sidebells shinleaf Subalpine fir Western rattlesnake plantain	40 20 20 15 10 10 5 5 5 5 5	
Anatone, cold---	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
219: Needhill-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Parsnip-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
220: Needhill-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Zumwalt-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
221: Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
222: Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
223: Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
224: Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
225: Parsnip-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
226: Parsnip-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
227: Phys-----	FAN 14-17 PZ (R009XY004OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Basin wildrye Bluebunch wheatgrass Idaho fescue		60 25 10



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
228: Phys-----	FAN 10-15 PZ (R009XY003OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Netleaf hackberry Sand dropseed		60 15 8
Doublecreek----	LOAMY BENCH 10-15 PZ (R009XY050OR)	Favorable Normal Unfavorable	1,200 1,000 800	Bluebunch wheatgrass Sand dropseed		80 15
Collegecreek----	FAN 10-15 PZ (R009XY003OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Netleaf hackberry Sand dropseed		60 15 8
229: Phys-----	FAN 10-15 PZ (R009XY003OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Netleaf hackberry Sand dropseed		60 15 8
Doublecreek----	LOAMY BENCH 10-15 PZ (R009XY050OR)	Favorable Normal Unfavorable	1,200 1,000 800	Bluebunch wheatgrass Sand dropseed		80 15
Collegecreek----	FAN 10-15 PZ (R009XY003OR)	Favorable Normal Unfavorable	1,600 1,300 1,000	Bluebunch wheatgrass Netleaf hackberry Sand dropseed		60 15 8
230: Powwatka-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
231: Powwatka-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
232: Powwatka-----	NORTH 14-17 PZ (R009XY040OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
233: Powwatka-----	MOUNTAIN SOUTH 13-17 PZ (R009XY034OR)	Favorable Normal Unfavorable	1,300 1,000 800	Bluebunch wheatgrass Idaho fescue		65 30
234: Puzzlecreek----	HIGH RIDGE 30+ PZ (R009XY070OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Sedge Rush Bluegrass		50 20 10 5
235: Ramo-----	CLAYEY 14-17 PZ (R009XY015OR)	Favorable Normal Unfavorable	1,200 700 400	Idaho fescue Bluebunch wheatgrass		70 15
236: Ramo-----	CLAYEY 14-17 PZ (R009XY015OR)	Favorable Normal Unfavorable	1,200 700 400	Idaho fescue Bluebunch wheatgrass		70 15
237: Ramo-----	DEEP NORTH 14-17 PZ (R009XY041OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Bluebunch wheatgrass Common snowberry Common chokecherry Saskatoon serviceberry Mallow ninebark Rose		60 10 10 6 5 5 3

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
238: Ramo-----	CLAYEY 14-17 PZ (R009XY015OR)	Favorable Normal Unfavorable	1,200 700 400	Idaho fescue Bluebunch wheatgrass		70 15
Conley-----	LOAMY BOTTOM (R010XY005OR)	Favorable Normal Unfavorable	7,000 5,000 4,000	Basin wildrye Bluebunch wheatgrass Bluegrass Willow		85 5 5 5
239: Reavis-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
240: Redmount-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
241: Redmount-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
242: Redmount-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
243: Redmount-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
Cheval-----	MOUNTAIN MEADOW (R010XY002OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Tufted hairgrass Bluegrass Rush Willow		60 5 5 5
244: Riverwash.						
245: Rock outcrop, limestone.						
246: Rock outcrop.						
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Fivebit-----	PONDEROSA PINE/IDAHO FESCUE (CPG112)	Favorable Normal Unfavorable	1,500 1,000 700	Ponderosa pine Idaho fescue Bluebunch wheatgrass	30 25 10	
247: Rock outcrop.						
Anatone-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Imnaha-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
248: Rock outcrop.						
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
Imnaha-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
249: Rock outcrop.						
Imnaha-----	NORTH 14-17 PZ (R009XY040OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Cherrycreek----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
250: Rock outcrop.						
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Anatone-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
251: Rock outcrop.						
Rockly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Dixiejett-----	SOUTH 14-17 PZ (R009XY029OR)	Favorable Normal Unfavorable	1,800 1,400 1,100	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Sandberg bluegrass		70 8 5 3
252: Rockly-----	SHALLOW NORTH 10-15 PZ (R009XY055OR)	Favorable Normal Unfavorable	800 600 400	Bluebunch wheatgrass Idaho fescue		70 20
Rock outcrop.						
Copperfield----	LOW ELEVATION DEEP NORTH 14-17 PZ (R009XY043OR)	Favorable Normal Unfavorable	2,300 1,800 1,300	Idaho fescue Bluebunch wheatgrass Common snowberry Rose		40 30 15 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
253: Rockly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
Rock outcrop.						
Licksillet-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
254: Rondowa-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
255: Rondowa-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
256: Rondowa-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
257: Rondowa-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
258: Rondowa-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
259: Rondowa-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
260: Rondowa-----	MOUNTAIN SOUTH 17-24 PZ (R009XY035OR)	Favorable Normal Unfavorable	1,800 1,400 1,000	Bluebunch wheatgrass Idaho fescue		65 30
261: Rondowa-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
262: Rondowa-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
263: Rondowa-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
264: Rondowa-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
265: Rondowa-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
266: Rubble land.  Rock outcrop.						
267: Sag-----	SHRUBBY MOIST NORTH 15+ PZ (R009XY046OR)	Favorable Normal Unfavorable	3,500 3,000 2,500	Hawthorn Mallow ninebark Saskatoon serviceberry Common snowberry Idaho fescue		60 15 8 8 5
268: Sag-----	SHRUBBY MOIST NORTH 15+ PZ (R009XY046OR)	Favorable Normal Unfavorable	3,500 3,000 2,500	Hawthorn Mallow ninebark Saskatoon serviceberry Common snowberry Idaho fescue		60 15 8 8 5
269: Sag-----	SHRUBBY MOIST NORTH 15+ PZ (R009XY046OR)	Favorable Normal Unfavorable	3,500 3,000 2,500	Hawthorn Mallow ninebark Saskatoon serviceberry Common snowberry Idaho fescue		60 15 8 8 5
270: Schrier-----	LOAMY 14-17 PZ (R009XY010OR)	Favorable Normal Unfavorable	2,000 1,600 1,100	Idaho fescue Bluebunch wheatgrass		75 45
271: Schrier-----	LOAMY NORTH 10-15 PZ (R009XY054OR)	Favorable Normal Unfavorable	1,200 1,000 800	Idaho fescue Bluebunch wheatgrass		60 30
Almota-----	LOAMY NORTH 10-15 PZ (R009XY054OR)	Favorable Normal Unfavorable	1,200 1,000 800	Idaho fescue Bluebunch wheatgrass		60 30
272: Schrier-----	LOAMY NORTH 10-15 PZ (R009XY054OR)	Favorable Normal Unfavorable	1,200 1,000 800	Idaho fescue Bluebunch wheatgrass		60 30

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
272: Almota-----	LOAMY NORTH 10-15 PZ (R009XY054OR)	Favorable Normal Unfavorable	1,200 1,000 800	Idaho fescue Bluebunch wheatgrass		60 30
Rock outcrop.						
273: Schuelke-----	LOAMY SOUTH 10-15 PZ (R009XY051OR)	Favorable Normal Unfavorable	1,000 800 600	Bluebunch wheatgrass Sand dropseed		85 10
Schrier-----	LOAMY NORTH 10-15 PZ (R009XY054OR)	Favorable Normal Unfavorable	1,200 1,000 800	Idaho fescue Bluebunch wheatgrass		60 30
Rockly-----	VERY SHALLOW SOUTH 10-15 PZ (R009XY053OR)	Favorable Normal Unfavorable	400 200 100	Buckwheat Bluebunch wheatgrass Sand dropseed		50 30 5
274: Silverlake-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
275: Slicklog-----	GRAND FIR/ROCKY MOUNTAIN MAPLE (CWS912)	---	---	Grand fir Douglas fir Engelmann spruce Rocky Mountain maple Blue huckleberry Heartleaf arnica Longtube twinflower Smallflower miterwort Starry false Solomon's seal Western larch	40 20 20 10 5 5 5 5 5 5	
276: Slicklog-----	GRAND FIR/ROCKY MOUNTAIN MAPLE (CWS912)	---	---	Grand fir Douglas fir Engelmann spruce Rocky Mountain maple Blue huckleberry Heartleaf arnica Longtube twinflower Smallflower miterwort Starry false Solomon's seal Western larch	40 20 20 10 5 5 5 5 5 5	
Eastpine-----	GRAND FIR/ROCKY MOUNTAIN MAPLE (CWS912)	---	---	Grand fir Douglas fir Engelmann spruce Rocky Mountain maple Blue huckleberry Heartleaf arnica Longtube twinflower Smallflower miterwort Starry false Solomon's seal Western larch	40 20 20 10 5 5 5 5 5 5	
277: Slicklog-----	GRAND FIR/ROCKY MOUNTAIN MAPLE (CWS912)	---	---	Grand fir Douglas fir Engelmann spruce Rocky Mountain maple Blue huckleberry Heartleaf arnica Longtube twinflower Smallflower miterwort Starry false Solomon's seal Western larch	40 20 20 10 5 5 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
277: Eastpine-----	GRAND FIR/ROCKY MOUNTAIN MAPLE (CWS912)	---	---	Grand fir Douglas fir Engelmann spruce Rocky Mountain maple Blue huckleberry Heartleaf arnica Longtube twinflower Smallflower miterwort Starry false Solomon's seal Western larch	40 20 20 10 5 5 5 5 5 5	
Rock outcrop.						
278: Slicklog-----	GRAND FIR/ROCKY MOUNTAIN MAPLE (CWS912)	---	---	Grand fir Douglas fir Engelmann spruce Rocky Mountain maple Blue huckleberry Heartleaf arnica Longtube twinflower Smallflower miterwort Starry false Solomon's seal Western larch	40 20 20 10 5 5 5 5 5 5	
Wintercanyon----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Rock outcrop.						
279: Snell-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		75 10
280: Snell-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
281: Snell-----	NORTH 14-17 PZ (R009XY040OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
282: Snell-----	NORTH 14-17 PZ (R009XY040OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
283: Snell-----	MOUNTAIN SOUTH 13-17 PZ (R009XY034OR)	Favorable Normal Unfavorable	1,300 1,000 800	Bluebunch wheatgrass Idaho fescue		65 30
Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
284: Snell-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
285: Snell-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Imnaha-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
286: Snell-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Imnaha-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5
287: Snell-----	NORTH 14-17 PZ (R009XY040OR)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
Rock outcrop.						
288: Snell-----	SHRUBBY NORTH 15+ PZ (R009XY060OR)	Favorable Normal Unfavorable	3,000 2,500 2,000	Mallow ninebark Common snowberry Saskatoon serviceberry Rose Idaho fescue		60 15 10 10 5



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
288: Imnaha-----	NORTH 14-17 PZ (R009XY0400R)	Favorable Normal Unfavorable	2,200 1,700 1,200	Idaho fescue Bluebunch wheatgrass		75 10
Rock outcrop.						
289: Snow-----	LOAMY BOTTOM (R010XY0050R)	Favorable Normal Unfavorable	7,000 5,000 4,000	Basin wildrye Bluebunch wheatgrass Bluegrass Willow		85 5 5 5
290: Sopher-----	DOUGLAS FIR/OCEANSPRAY (CDS611)	---	---	Douglas fir Ponderosa pine Creambush oceanspray Common snowberry Elk sedge Pinegrass Heartleaf arnica Mallow ninebark Rose Shinyleaf spirea	35 25 20 10 10 10 5 5 5 5	
291: Sopher-----	DOUGLAS FIR/OCEANSPRAY (CDS611)	---	---	Douglas fir Ponderosa pine Creambush oceanspray Common snowberry Elk sedge Pinegrass Heartleaf arnica Mallow ninebark Rose Shinyleaf spirea	35 25 20 10 10 10 5 5 5 5	
292: Sopher-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Gwinly-----	SHALLOW NORTH 14+ PZ (R009XY0480R)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
293: Sopher-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY0310R)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
294: Sopher-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
294: Gwinly-----	SHALLOW SOUTH 14+ PZ (R009XY031OR)	Favorable Normal Unfavorable	1,200 700 400	Bluebunch wheatgrass Idaho fescue Sandberg bluegrass Arrowleaf balsamroot		75 10 5 5
295: Sturgill-----	WET MOUNTAIN MEADOW (R010XY001OR)	Favorable Normal Unfavorable	2,500 1,500 1,000	Sedge Tufted hairgrass Rush		70 20 5
296: Sturgill-----	WET MOUNTAIN MEADOW (R010XY001OR)	Favorable Normal Unfavorable	2,500 1,500 1,000	Sedge Tufted hairgrass Rush		70 20 5
Eggleson-----	SPRUCE-COTTONWOOD (R043XY605OR)	---	---	Engelmann spruce Cottonwood Rose Rocky Mountain juniper Currant Ponderosa pine Sedge Thinleaf alder Water birch	40 15 8 5 5 5 5 5 5	
297: Sweitberg-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
298: Sweitberg-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
299: Sweiting-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
300: Sweiting-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
301: Sweiting-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
302: Sweiting-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
303: Sweiting-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Klicker-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
304: Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
305: Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Anatone-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
306: Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
306: Lowerbluff-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
307: Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Tamara-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
308: Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Tamara-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
309: Tamara-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Sherod-----	MOUNTAIN SWALE 17-24 PZ (R009XY007OR)	Favorable Normal Unfavorable	1,500 1,200 800	California oatgrass Rush Sedge Bluegrass Spikerush Timber oatgrass		30 15 10 8 5 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
310: Tamara-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
Syrupcreek-----	GRAND FIR/TWINFLOWER (CWF311)	---	---	Grand fir Longtube twinflower Douglas fir Engelmann spruce Blue huckleberry Prince's pine Sedge Sidebells shinleaf Western rattlesnake plantain	40 20 15 10 10 5 5 5 5	
311: Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
312: Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Lowerbluff-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
313: Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
314: Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Harlow-----	MOUNTAIN SHALLOW SOUTH 13+ PZ (R009XY036OR)	Favorable Normal Unfavorable	1,000 700 400	Bluebunch wheatgrass Idaho fescue Arrowleaf balsamroot Buckwheat		70 20 5 5
315: Tannahill-----	LOAMY SOUTH 10-15 PZ (R009XY051OR)	Favorable Normal Unfavorable	1,000 800 600	Bluebunch wheatgrass Sand dropseed		85 10
Schrier-----	LOAMY NORTH 10-15 PZ (R009XY054OR)	Favorable Normal Unfavorable	1,200 1000 800	Idaho fescue Bluebunch wheatgrass		60 30
Rock outcrop.						
316: Tannahill-----	LOAMY SOUTH 10-15 PZ (R009XY051OR)	Favorable Normal Unfavorable	1,000 800 600	Bluebunch wheatgrass Sand dropseed		85 10
Schuelke-----	LOAMY SOUTH 10-15 PZ (R009XY051OR)	Favorable Normal Unfavorable	1,000 800 600	Bluebunch wheatgrass Sand dropseed		85 10
Licksillet-----	LOAMY SHALLOW SOUTH 10-15 PZ (R009XY052OR)	Favorable Normal Unfavorable	800 600 400	Bluebunch wheatgrass Sand dropseed		90 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
317: Thiessen-----	LOW ELEVATION NORTH 14-17 PZ (R009XY042OR)	Favorable Normal Unfavorable	2,000 1,600 1,200	Idaho fescue Bluebunch wheatgrass		50 40
318: Threebuck-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
319: Threebuck-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
320: Threebuck-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
321: Threebuck-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
321: Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
322: Threebuck-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Harlow-----	SHALLOW NORTH 14+ PZ (R009XY048OR)	Favorable Normal Unfavorable	1,500 1,000 700	Idaho fescue Bluebunch wheatgrass Sandberg bluegrass		55 25 5
323: Threebuck-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Tamarackcanyon--	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
Linecreek-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
324: Tippett-----	MOUNTAIN CLAYEY SWALE 13-17 PZ (R009XY006OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Tufted hairgrass Sedge Rush Spikerush		70 15 8 5
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25



Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
325: Tippett-----	MOUNTAIN CLAYEY SWALE 13-17 PZ (R009XY006OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Tufted hairgrass Sedge Rush Spikerush		70 15 8 5
Zumwalt-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
326: Tolo-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
327: Tolo-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
328: Tolo, fan-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
329: Tolo-----	DOUGLAS FIR/PINEGRASS (CDG121)	---	---	Douglas fir Pinegrass Ponderosa pine Elk sedge Heartleaf arnica	40 40 20 15 5	
Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	
330: Tolo-----	DOUGLAS FIR/PINEGRASS (CDG121)	---	---	Douglas fir Pinegrass Ponderosa pine Elk sedge Heartleaf arnica	40 40 20 15 5	
Getaway-----	DOUGLAS FIR/NINEBARK (CDS711)	---	---	Douglas fir Mallow ninebark Pinegrass Ponderosa pine Common snowberry Elk sedge Heartleaf arnica Shinyleaf spirea	45 40 15 15 10 10 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
331: Tolo-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Getaway-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
332: Tolo-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
Getaway-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Ponderosa pine Common snowberry Pinegrass Elk sedge Shinyleaf spirea Heartleaf arnica	40 30 20 10 10 5	
333: Tolo-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
334: Tolo-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Olot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
335: Topper-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
336: Topper-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
337: Topper-----	DEEP NORTH 14-17 PZ (R009XY041OR)	Favorable Normal Unfavorable	2,500 2,000 1,500	Idaho fescue Bluebunch wheatgrass Common snowberry Common chokecherry Saskatoon serviceberry Mallow ninebark Rose		60 10 10 6 5 5 3
338: Topper-----	MOUNTAIN SOUTH 13-17 PZ (R009XY034OR)	Favorable Normal Unfavorable	1,300 1,000 800	Bluebunch wheatgrass Idaho fescue		65 30
339: Troutmeadows----	SUBALPINE FIR/BLUE (BIG) HUCKLEBERRY (CES311)	---	---	Subalpine fir Blue huckleberry Engelmann spruce Grouse blueberry Sedge Sidebells shinleaf Violet	40 35 20 10 10 5 5	
Crawfish-----	SUBALPINE SLOPES (R009XY075OR)	---	---	Greenleaf fescue Western needlegrass Lupine Sedge		70 10 5 5
340: Tuckerdowns-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
341: Tuckerdowns-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
342: Tuckerdowns-----	MOUNTAIN SOUTH 13-17 PZ (R009XY034OR)	Favorable Normal Unfavorable	1,300 1,000 800	Bluebunch wheatgrass Idaho fescue		65 30
343: Vandamine-----	SUBALPINE FIR/BLUE (BIG) HUCKLEBERRY (CES311)	---	---	Subalpine fir Blue huckleberry Engelmann spruce Grouse blueberry Sedge Sidebells shinleaf Violet	40 35 20 10 10 5 5	
Bordengulch-----	SUBALPINE FIR/GROUSE HUCKLEBERRY (BLUEBERRY) (CES411)	---	---	Grouse blueberry Subalpine fir Engelmann spruce Heartleaf arnica Pinegrass Sedge Sidebells shinleaf Skunkleaf polemonium Violet	40 30 25 5 5 5 5 5 5	

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
344: Vandamine-----	SUBALPINE FIR/BLUE (BIG) HUCKLEBERRY (CES311)	---	---	Subalpine fir Blue huckleberry Engelmann spruce Grouse blueberry Sedge Sidebells shinleaf Violet	40 35 20 10 10 5 5	
Bordengulch----	SUBALPINE FIR/GROUSE HUCKLEBERRY (BLUEBERRY) (CES411)	---	---	Grouse blueberry Subalpine fir Engelmann spruce Heartleaf arnica Pinegrass Sedge Sidebells shinleaf Skunkleaf polemonium Violet	40 30 25 5 5 5 5 5 5	
Rock outcrop.						
345: Veazie-----	COTTONWOOD-WILLOW-RIPARIAN (R010XY011OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Willow Basin wildrye Cottonwood Alder Sedge Hawthorn Rose Rush		25 20 20 8 8 5 5 5
346: Voats-----	COTTONWOOD-WILLOW-RIPARIAN (R010XY011OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Willow Basin wildrye Cottonwood Alder Sedge Hawthorn Rose Rush		25 20 20 8 8 5 5 5
Veazie-----	COTTONWOOD-WILLOW-RIPARIAN (R010XY011OR)	Favorable Normal Unfavorable	5,000 4,000 3,000	Willow Basin wildrye Cottonwood Alder Sedge Hawthorn Rose Rush		25 20 20 8 8 5 5 5
347: Volstead-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Quirk-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Common snowberry Pinegrass Ponderosa pine Elk sedge Shinyleaf spirea Heartleaf arnica	30 20 20 10 10 5	
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
348: Volstead-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
Quirk-----	PONDEROSA PINE/COMMON SNOWBERRY (CPS522)	---	---	Common snowberry Pinegrass Ponderosa pine Elk sedge Shinyleaf spirea Heartleaf arnica	30 20 20 10 10 5	
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
349: Wallowa-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
Bocker-----	MOUNTAIN VERY SHALLOW 13+ PZ (R009XY027OR)	Favorable Normal Unfavorable	600 400 200	Bluebunch wheatgrass Sandberg bluegrass Onespike oatgrass Idaho fescue		45 25 10 5
350: Watama-----	LOAMY 14-17 PZ (R009XY010OR)	Favorable Normal Unfavorable	2,000 1,600 1,100	Idaho fescue Bluebunch wheatgrass		75 45
351: Watama-----	LOAMY 14-17 PZ (R009XY010OR)	Favorable Normal Unfavorable	2,000 1,600 1,100	Idaho fescue Bluebunch wheatgrass		75 45
352: Watama-----	LOAMY 14-17 PZ (R009XY010OR)	Favorable Normal Unfavorable	2,000 1,600 1,100	Idaho fescue Bluebunch wheatgrass		75 45
Rockly-----	VERY SHALLOW 14-18 PZ (R009XY025OR)	Favorable Normal Unfavorable	600 400 200	Sandberg bluegrass Bluebunch wheatgrass Onespike oatgrass Stiff sagebrush Biscuitroot		45 25 10 8 5
353: Water.						
354: Wilkins-----	MOUNTAIN MEADOW (R010XY002OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Tufted hairgrass Bluegrass Rush Willow		60 5 5 5
355: Wilkins-----	MOUNTAIN MEADOW (R010XY002OR)	Favorable Normal Unfavorable	4,000 3,000 2,000	Tufted hairgrass Bluegrass Rush Willow		60 5 5 5
Feaginranch----	WET MOUNTAIN MEADOW (R010XY001OR)	Favorable Normal Unfavorable	2,500 1,500 1,000	Sedge Tufted hairgrass Rush		70 20 5

Table 7.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry weight		Forest	Range
			Lb/acre		Pct	Pct
356: Wolot-----	DOUGLAS FIR/COMMON SNOWBERRY (CDS622)	---	---	Douglas fir Common snowberry Pinegrass Ponderosa pine Elk sedge Heartleaf arnica Shinyleaf spirea	40 25 20 20 15 5 5	
357: Zumwalt-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
358: Zumwalt-----	MOUNTAIN LOAMY 13-17 PZ (R009XY017OR)	Favorable Normal Unfavorable	1,600 1,200 900	Idaho fescue Bluebunch wheatgrass		65 25
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25
359: Zumwalt-----	MOUNTAIN LOAMY 17-24 PZ (R009XY018OR)	Favorable Normal Unfavorable	2,300 1,800 1,400	Idaho fescue Bluebunch wheatgrass		75 10
Harlow-----	MOUNTAIN SHALLOW 13+ PZ (R009XY022OR)	Favorable Normal Unfavorable	1,300 900 500	Idaho fescue Bluebunch wheatgrass		70 25

Table 8.--Forestland Management

(Data were collected only for the soils that currently support forestland)

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Wind-throw	Plant competition	Fire damage
1, 2: Akerite-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
5: Analulu-----	Moderate	Severe	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate
Slicklog-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
Bluecanyon.									
6: Analulu-----	Moderate	Severe	Severe	Severe	Severe	Severe	Moderate	Moderate	Moderate
Slicklog-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
Rock outcrop.									
10: Anatone.									
Bocker.									
Fivebit-----	Slight	Slight	Slight	Slight	Slight	Severe	Severe	Moderate	Slight
11: Anatone.									
Bocker.									
Fivebit-----	Moderate	Slight	Severe	Slight	Severe	Severe	Severe	Moderate	Moderate
14: Anatone.									
Kamela-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
15: Anatone.									
Klicker-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
Rock outcrop.									
16: Anatone.									
Linecreek-----	Moderate	Moderate	Severe	Slight	Moderate	Moderate	Slight	Moderate	Moderate
Rock outcrop.									
17: Anatone.									
Olot-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight
19: Anatone.									
Rock outcrop.									
Fivebit-----	Moderate	Moderate	Severe	Slight	Severe	Severe	Severe	Moderate	Moderate
22: Bittercreek.									
Mippon-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Wind-throw	Plant competition	Fire damage
29: Btree----- Flycreek-----	Moderate	Moderate	Moderate	Moderate	Severe	Slight	Slight	Moderate	Slight
30: Btree----- Flycreek-----	Moderate	Severe	Severe	Moderate	Severe	Slight	Slight	Moderate	Slight
31: Btree----- Flycreek----- Anatone.	Moderate	Severe	Severe	Moderate	Severe	Slight	Slight	Moderate	Slight
32: Btree----- Flycreek----- Anatone.	Severe	Severe	Severe	Moderate	Severe	Slight	Slight	Moderate	Slight
33: Btree----- Klicker----- Anatone.	Severe	Severe	Severe	Moderate	Severe	Slight	Slight	Moderate	Slight
34: Bucketlake-----	Moderate	Slight	Moderate	Severe	Slight	Slight	Slight	Moderate	Slight
35: Bucketlake-----	Moderate	Slight	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
36: Buford----- Anatone.	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
37: Buford----- Bocker.	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
38: Bunchpoint-----	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Slight
39: Bunchpoint----- Bocker.	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Slight
44: Cherrycreek. Limberjim----- Rock outcrop.	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
48, 49: Cloverland-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
54, 55: Cowsly-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight



Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Wind-throw	Plant competition	Fire damage
56: Cowsly-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
57: Cowsly, cobbly-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Cowsly-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
58: Cowsly, cobbly-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Cowsly-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
59: Cowsly-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
Howmeadows.									
Sherod.									
65: Downards-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Slight
Anatone.									
Rock outcrop.									
66: Downards-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Slight
Emily-----	Moderate	Moderate	Severe	Moderate	Moderate	Moderate	Slight	Moderate	Slight
Sopher-----	Moderate	Slight	Severe	Severe	Slight	Moderate	Slight	Moderate	Moderate
67: Downards-----	Slight	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
Klicker-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Moderate
68: Downards-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
Klicker-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
69: Downeygulch-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
Lowerbluff-----	Slight	Slight	Slight	Severe	Slight	Moderate	Severe	Moderate	Moderate
70: Downeygulch-----	Moderate	Moderate	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Thirstygulch-----	Moderate	Slight	Moderate	Moderate	Slight	Moderate	Severe	Moderate	Slight
71: Eggleson-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
72: Emily-----	Slight	Slight	Moderate	Moderate	Slight	Moderate	Slight	Moderate	Slight
Wolot-----	Moderate	Moderate	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
74: Ferguson-----	Slight	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Slight
75: Ferguson-----	Slight	Slight	Moderate	Severe	Severe	Slight	Slight	Moderate	slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Windthrow	Plant competition	Fire damage
76: Ferguson-----	Moderate	Slight	Severe	Severe	Severe	Slight	Slight	Moderate	Slight
77: Ferguson-----	Slight	Slight	Moderate	Severe	Severe	Slight	Slight	Moderate	Slight
78: Ferguson-----	Moderate	Slight	Severe	Severe	Severe	Slight	Slight	Moderate	Moderate
81: Flycreek-----	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Slight
Flyvalley-----	Slight	Slight	Slight	Severe	Slight	Slight	Severe	Moderate	Slight
83: Geisercreek-----	Moderate	Moderate	Moderate	Severe	Slight	Slight	Slight	Moderate	Slight
86: Getaway-----	Slight	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
87: Getaway-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
88: Getaway-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
Anatone.  Rock outcrop.									
89: Getaway-----  Harlow.	Slight	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
90: Getaway-----  Harlow.	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
91: Getaway-----  Harlow.  Rock outcrop.	Moderate	Severe	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
92: Getaway-----  Linecreek-----  Anatone.	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
93: Getaway-----  Snell.	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
96: Gwin.  Klickson-----  Kettenbach.	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Slight	Moderate	Moderate

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Wind-throw	Plant competition	Fire damage
106: Gwinly.									
Sopher-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
107: Gwinly.									
Sopher-----	Moderate	Moderate	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
Rock outcrop.									
108: Hapludolls, frigid---	Slight	Slight	Moderate	Severe	Slight	Slight	Moderate	Severe	Slight
Endoaquolls, frigid.									
Endoaquents, frigid.									
109: Harl-----	Moderate	Severe	Severe	Moderate	Moderate	Slight	Slight	Moderate	Slight
Anatone.									
Rock outcrop.									
110: Harl-----	Moderate	Severe	Severe	Moderate	Moderate	Slight	Slight	Moderate	Slight
Anatone.									
Rock outcrop.									
111: Harl-----	Moderate	Severe	Severe	Moderate	Moderate	Slight	Slight	Moderate	Slight
Getaway-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
112: Harl-----	Moderate	Severe	Severe	Moderate	Moderate	Slight	Slight	Moderate	Slight
Limberjim-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
Rock outcrop.									
121: Harlow.									
Klicker-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
122: Harlow.									
Klicker-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
127: Harlow.									
Tamarackcanyon-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
Linecreek-----	Moderate	Moderate	Severe	Slight	Moderate	Moderate	Slight	Moderate	Severe
128: Harlow.									
Tamarackcanyon-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
Olot-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Windthrow	Plant competition	Fire damage
129: Harlow.  Threebuck-----	Moderate	Slight	Severe	Severe	Moderate	Slight	Slight	Moderate	Moderate
148: Kahler-----  Anatone.	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
149: Kahler-----  Anatone.  Rock outcrop.	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
150: Kahler-----  Linecreek-----  Getaway-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
151: Kahler-----  Linecreek-----  Getaway-----	Moderate	Slight	Severe	Slight	Moderate	Slight	Slight	Moderate	Moderate
152: Klicker-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
153: Kahler-----  Linecreek-----  Getaway-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
154: Klicker-----	Moderate	Moderate	Severe	Slight	Moderate	Slight	Slight	Moderate	Moderate
155: Klicker-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
156: Klicker-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
157: Klicker-----  Anatone.	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
158: Klicker-----  Anatone.	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Moderate
159: Klicker-----  Anatone.	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
160: Klicker-----  Fivebit-----  Anatone.	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
	Slight	Slight	Slight	Slight	Slight	Moderate	Severe	Moderate	Slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equip- ment limitat- ion	Soil compac- tion	Soil dis- place- ment	Seedling mortal- ity	Wind- throw	Plant compet- ition	Fire damage
161: Klicker----- Fivebit----- Anatone.	Moderate	Slight	Severe	Severe	Moderate	Slight	Moderate	Moderate	Slight
162: Klicker----- Harlow.	Moderate	Slight	Severe	Slight	Severe	Severe	Severe	Moderate	Moderate
163: Klicker----- Kamela----- Fivebit-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
164: Klicker----- Olot-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight
165: Klicker----- Thirstygulch----- Anatone.	Moderate	Slight	Severe	Slight	Severe	Severe	Severe	Moderate	Moderate
166: Klicker----- Thirstygulch----- Anatone.	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
167: Klicker----- Rock outcrop. Anatone.	Moderate	Slight	Severe	Severe	Moderate	Slight	Moderate	Moderate	Slight
168: Klickson----- Anatone. Larabee-----	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Slight	Moderate	Moderate
169: Klickson----- Anatone. Larabee-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight
170: Klickson----- Larabee-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight
	Slight	Moderate	Moderate	Moderate	Slight	Moderate	Slight	Moderate	Slight
	Moderate	Moderate	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equip- ment limitat- ion	Soil compac- tion	Soil dis- place- ment	Seedling mortal- ity	Wind- throw	Plant compet- ition	Fire damage
171:									
Klickson-----	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Slight	Moderate	Moderate
Larabee-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight
Volstead-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Slight	Moderate	Slight
174:									
Larabee-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight
Getaway-----	Moderate	Moderate	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
Klickson-----	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Slight	Moderate	Moderate
175:									
Larabee-----	Moderate	Moderate	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Klickson-----	Slight	Moderate	Moderate	Moderate	Slight	Moderate	Slight	Moderate	Slight
Volstead-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
176:									
Larabee-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Slight
Klickson-----	Moderate	Severe	Severe	Moderate	Moderate	Moderate	Slight	Moderate	Moderate
Volstead-----	Moderate	Severe	Severe	Severe	Moderate	Moderate	Slight	Moderate	Slight
177:									
Larabee-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
Melhorn-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
178:									
Larabee-----	Moderate	Moderate	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Volstead-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
187:									
Limberjim-----	Slight	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Slight
188:									
Limberjim-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
Anatone.									
189:									
Limberjim-----	Moderate	Moderate	Moderate	Severe	Slight	Slight	Slight	Moderate	Slight
Syrupcreek-----	Moderate	Moderate	Moderate	Severe	Slight	Slight	Moderate	Moderate	Slight
190:									
Limberjim-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
Syrupcreek-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Moderate	Moderate	Slight
191:									
Limberjim-----	Slight	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Slight
Tamara-----	Slight	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Slight
192:									
Linecreek-----	Moderate	Moderate	Severe	Slight	Moderate	Slight	Slight	Moderate	Moderate
Getaway-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Moderate
193, 194:									
Lookingglass-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Wind-throw	Plant competition	Fire damage
195: Lookingglass, stony--	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
196: Lookingglass, cobbly	Moderate	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
Lookingglass-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
197: Lookingglass-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
Sopher-----	Slight	Slight	Moderate	Severe	Slight	Slight	Slight	Moderate	Slight
198: Lookingglass-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
Sopher-----	Slight	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Moderate
204: Matterhorn-----	Slight	Slight	Slight	Severe	Slight	Severe	Slight	Moderate	Slight
205: Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
206: Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
207: Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
208: Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
209: Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
210: Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
211: Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
212: Minam, gravelly-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
Minam-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
Endoaquepts.									
213: Minam, gravelly-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
Minam, stony-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight
Endoaquepts.									
214: Mippon-----	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Slight
215: Mountemily-----	Slight	Moderate	Moderate	Severe	Slight	Slight	Slight	Moderate	Slight
Troutmeadows-----	Slight	Moderate	Moderate	Severe	Moderate	Slight	Moderate	Moderate	Slight
216, 217: Mountemily-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
Troutmeadows-----	Moderate	Severe	Severe	Severe	Severe	Slight	Moderate	Moderate	Slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equipment limitation	Soil compaction	Soil displacement	Seedling mortality	Wind-throw	Plant competition	Fire damage
218: Mount Emily-----  Trout meadows-----  Anatone, cold.	Moderate	Severe	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight
221: Olot-----  222: Olot:-----  223: Olot-----  Anatone.	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
224: Olot-----  Anatone.	Slight	Moderate	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
246: Rock outcrop.  Anatone.	Moderate	Moderate	Severe	Slight	Severe	Severe	Severe	Moderate	Moderate
250: Rock outcrop.  Line creek-----  Anatone.	Moderate	Moderate	Severe	Slight	Moderate	Slight	Slight	Moderate	Moderate
261, 262: Rondawa-----  263: Rondawa-----  264: Rondawa-----  265: Rondawa-----	Slight	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
275: Slicklog-----  276: Slicklog-----  East pine-----  277: Slicklog-----  East pine-----  Rock outcrop.	Moderate	Slight	Severe	Severe	Moderate	Moderate	Slight	Moderate	Slight
278: Slicklog-----  Winter canyon-----  Rock outcrop.	Moderate	Moderate	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight



Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equip- ment limitat- ion	Soil compac- tion	Soil dis- place- ment	Seedling mortal- ity	Wind- throw	Plant compet- ition	Fire damage
290: Sopher-----	Slight	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Moderate
291: Sopher-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
292: Sopher-----	Moderate	Slight	Severe	Severe	Moderate	Slight	Slight	Moderate	Moderate
Gwinly.									
293: Sopher-----	Slight	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Moderate
Gwinly.									
294: Sopher-----	Moderate	Slight	Severe	Severe	Moderate	Moderate	Slight	Moderate	Moderate
Gwinly.									
296: Sturgill.									
Eggleson-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
299: Sweiting-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
300: Sweiting-----	Moderate	Slight	Moderate	Severe	Slight	Slight	Moderate	Moderate	Slight
301: Sweiting-----	Slight	Slight	Slight	Severe	Slight	Moderate	Moderate	Moderate	Slight
Harlow.									
302: Sweiting-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Harlow.									
303: Sweiting-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Klicker.									
304: Syrupcreek-----	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Slight
305: Syrupcreek-----	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Slight
Anatone.									
306: Syrupcreek-----	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Slight
Lowerbluff-----	Slight	Slight	Slight	Severe	Slight	Moderate	Severe	Moderate	Moderate
307: Syrupcreek-----	Moderate	Moderate	Moderate	Severe	Slight	Slight	Moderate	Moderate	Slight
Tamara-----	Moderate	Moderate	Moderate	Severe	Slight	Slight	Slight	Moderate	Slight
308: Syrupcreek-----	Moderate	Severe	Severe	Severe	Moderate	Slight	Moderate	Moderate	Slight
Tamara-----	Moderate	Moderate	Severe	Severe	Moderate	Slight	Slight	Moderate	Slight

Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equip- ment limitat- ion	Soil compac- tion	Soil dis- place- ment	Seedling mortal- ity	Wind- throw	Plant compet- ition	Fire damage
309: Tamara----- Sherod.	Slight	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Slight
310: Tamara----- Syrupcreek-----	Slight	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Slight
311: Tamarackcanyon----- Linecreek----- Harlow.	Moderate	Moderate	Severe	Severe	Moderate	Slight	Moderate	Moderate	Moderate
312: Tamarackcanyon----- Lowerbluff-----	Slight	Slight	Slight	Severe	Slight	Slight	Moderate	Moderate	Moderate
313: Tamarackcanyon----- Olot----- Harlow.	Moderate	Slight	Moderate	Severe	Slight	Slight	Moderate	Moderate	Moderate
314: Tamarackcanyon----- Olot----- Harlow.	Moderate	Slight	Severe	Severe	Moderate	Moderate	Moderate	Moderate	Moderate
318: Threebuck----- Harlow.	Slight	Slight	Slight	Severe	Slight	Slight	Slight	Moderate	Slight
319: Threebuck----- Linecreek----- Harlow.	Moderate	Moderate	Severe	Severe	Moderate	Slight	Slight	Moderate	Moderate
320: Threebuck----- Tamarackcanyon-----	Moderate	Slight	Moderate	Severe	Slight	Slight	Slight	Moderate	Slight
321: Threebuck----- Tamarackcanyon-----	Moderate	Slight	Severe	Severe	Moderate	Slight	Moderate	Moderate	Moderate
322: Threebuck----- Tamarackcanyon----- Harlow.	Moderate	Slight	Severe	Severe	Moderate	Slight	Moderate	Moderate	Moderate



Table 8.--Forestland Management--Continued

Soil name and map symbol	Management concerns								
	Sheet and rill erosion	Cut and fill erosion	Equip- ment limitat- ion	Soil compac- tion	Soil dis- place- ment	Seedling mortal- ity	Wind- throw	Plant compet- ition	Fire damage
348: Volstead-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Slight	Moderate	Slight
Quirk-----	Moderate	Slight	Moderate	Severe	Slight	Moderate	Moderate	Moderate	Slight
Bocker.									
356: Wolot-----	Slight	Slight	Slight	Severe	Slight	Moderate	Slight	Moderate	Slight

Table 9.--Forestland Productivity

(Data were collected only for the soils that currently support forestland. CMAI means culmination of mean and periodic annual increment (stand age). Absence of an entry indicates that information was not available)

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
1, 2:									
Akerite-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**----	---	---	---	104***	48,900	120	110	40
	Western larch*-----	64***	89	70	---	---	---	---	---
	Douglas-fir**-----	75***	51	107	98***	---	---	---	---
	Lodgepole pine-----	---	---	---	100***	---	---	102	40
5:									
Analulu-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch*-----	---	---	---	---	---	---	---	---
Slicklog-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch*-----	---	---	---	---	---	---	---	---
Bluecanyon.									
6:									
Analulu-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch*-----	---	---	---	---	---	---	---	---
Slicklog-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch*-----	---	---	---	---	---	---	---	---
Rock outcrop.									
10:									
Anatone.									
Bocker.									
Fivebit-----	Ponderosa pine**----	---	---	---	74	30,900	160	60	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
11:									
Anatone.									
Bocker.									
Fivebit-----	Ponderosa pine**----	---	---	---	74	30,900	160	60	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
14:									
Anatone.									
Kamela-----	Douglas-fir**-----	60***	44	110	81***	---	---	---	---
	Grand fir-----	54***	64	121	---	---	---	---	---
	Ponderosa pine**----	---	---	---	70***	27,500	160	55	50
	Western larch*-----	47***	58	70	---	---	---	---	---
15:									
Anatone.									
Klicker-----	Ponderosa pine**----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
Rock outcrop.									

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
16: Anatone.									
Linecreek-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Rock outcrop.									
17: Anatone.									
Olot-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Grand fir-----	63***	81	118	---	---	---	---	---
	Western larch**-----	69***	99	70	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
19: Anatone.									
Rock outcrop.									
Fivebit-----	Ponderosa pine**-----	---	---	---	74	30,900	160	60	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
22: Bittercreek.									
Mippon-----	Engelmann spruce**--	---	---	---	112***	---	---	130	80
	Grand fir**-----	78***	110	108	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
	Black cottonwood----	---	---	---	---	---	---	---	---
29, 30: Btree-----	Grand fir**-----	65***	85	116	---	---	---	---	---
	Douglas-fir**-----	58***	41	111	84***	---	---	---	---
	Western larch**-----	55***	72	70	---	---	---	---	---
	Engelmann spruce----	---	---	---	---	---	---	---	---
Flycreek-----	Douglas-fir**-----	60***	44	110	83***	---	---	---	---
	Western larch**-----	52***	67	70	---	---	---	---	---
	Grand fir**-----	53***	62	121	---	---	---	---	---
	Ponderosa pine-----	---	---	---	76***	32,500	160	63	50
31, 32: Btree-----	Grand fir**-----	65***	85	116	---	---	---	---	---
	Western larch**-----	55***	72	70	---	---	---	---	---
	Douglas-fir**-----	58***	41	111	84***	---	---	---	---
	Engelmann spruce----	---	---	---	---	---	---	---	---
Flycreek-----	Douglas-fir**-----	60***	44	110	83***	---	---	---	---
	Western larch**-----	52***	67	70	---	---	---	---	---
	Grand fir**-----	53***	62	121	---	---	---	---	---
	Ponderosa pine-----	---	---	---	76***	32,500	160	63	50
Anatone.									
33: Btree-----	Grand fir**-----	65***	85	116	---	---	---	---	---
	Western larch**-----	55***	72	70	---	---	---	---	---
	Douglas-fir**-----	58***	41	111	84***	---	---	---	---
	Engelmann spruce----	---	---	---	---	---	---	---	---
Klicker-----	Ponderosa pine**-----	---	---	---	72***	29,100	160	58	50
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Anatone.									

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
34, 35: Bucketlake-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Lodgepole pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
36: Buford-----	Ponderosa pine**-----	---	---	---	72	29,100	160	58	50
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Anatone.									
37: Buford-----	Ponderosa pine**-----	---	---	---	72	29,100	160	58	50
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Bocker.									
38: Bunchpoint-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
39: Bunchpoint-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Bocker.									
44: Cherrycreek.									
Limberjim-----	Grand fir**-----	54***	64	121	---	---	---	---	---
	Douglas-fir**-----	82***	86	96	107***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
Rock outcrop.									
48, 49: Cloverland-----	Ponderosa pine**-----	---	---	---	83***	36,700	150	74	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
54, 55: Cowsly-----	Ponderosa pine**-----	---	---	---	86	39,700	150	78	40
	Douglas-fir**-----	76***	73	99	93***	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
56: Cowsly-----	Ponderosa pine**-----	---	---	---	86	39,700	150	78	40
	Douglas-fir**-----	76***	73	99	93***	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
57: Cowsly, cobbly--	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	86	39,700	150	78	40
	Western larch**-----	---	---	---	---	---	---	---	---
Cowsly-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	86	39,700	150	78	40
	Western larch**-----	---	---	---	---	---	---	---	---
58: Cowsly, cobbly--	Ponderosa pine**-----	---	---	---	86***	39,700	150	78	40
	Douglas-fir**-----	76***	73	99	93***	---	---	---	---
Cowsly-----	Ponderosa pine**-----	---	---	---	86	39,700	150	78	40
	Douglas-fir**-----	76***	73	99	93***	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
59:									
Cowsly-----	Ponderosa pine**----	---	---	---	86	39,700	150	78	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Howmeadows.									
Sherod.									
65:									
Downards-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
	Western white pine--	---	---	---	---	---	---	---	---
Anatone.									
Rock outcrop.									
66:									
Downards-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
	Western white pine--	---	---	---	---	---	---	---	---
Emily-----	Ponderosa pine**----	---	---	---	103***	47,900	120	108	40
	Douglas-fir-----	85***	92	94	125***	---	---	---	---
Sopher-----	Douglas-fir**-----	72***	65	102	95***	---	---	---	---
	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
67:									
Downards-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
	Western white pine--	---	---	---	---	---	---	---	---
Klicker-----	Ponderosa pine**----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
68:									
Downards-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western white pine--	---	---	---	---	---	---	---	---
Klicker-----	Ponderosa pine**----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
69:									
Downeygulch----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Lodgepole pine-----	---	---	---	---	---	---	---	---
Lowerbluff-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---

See footnotes at end of table.



Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
70:									
Downeygulch----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Lodgepole pine-----	---	---	---	---	---	---	---	---
Thirstygulch----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
71:									
Eggleson-----	Engelmann spruce***	---	---	---	---	---	---	---	---
	Black cottonwood***	---	---	---	---	---	---	---	---
72:									
Emily-----	Ponderosa pine**-----	---	---	---	103***	47,900	120	108	40
	Douglas-fir**-----	85***	92	94	125***	---	---	---	---
Wolot-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
74, 75, 76:									
Ferguson-----	Grand fir**-----	59***	74	120	---	---	---	---	---
	Western larch**-----	63***	87	70	---	---	---	---	---
	Douglas-fir**-----	72***	65	102	100***	---	---	---	---
	Engelmann spruce***	---	---	---	101***	---	---	111	85
	Lodgepole pine-----	---	---	---	---	---	---	---	---
77, 78:									
Ferguson-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce---	---	---	---	---	---	---	---	---
81:									
Flycreek-----	Douglas-fir**-----	60***	44	110	83***	---	---	---	---
	Western larch**-----	52***	67	70	---	---	---	---	---
	Grand fir**-----	53***	62	121	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	76***	32,500	160	63	50
	Lodgepole pine-----	---	---	---	---	---	---	---	---
Flyvalley-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
83:									
Geisercreek----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
	Lodgepole pine-----	---	---	---	---	---	---	---	---
86, 87:									
Getaway-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Western larch**-----	57***	76	70	---	---	---	---	---
88:									
Getaway-----	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	57***	76	70	---	---	---	---	---
Anatone.									
Rock outcrop.									

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
89, 90: Getaway-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Western larch**-----	57***	76	70	---	---	---	---	---
Harlow.									
91: Getaway-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Western larch**-----	57***	76	70	---	---	---	---	---
Harlow.									
Rock outcrop.									
92: Getaway-----	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	57***	76	70	---	---	---	---	---
Linecreek-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Anatone.									
93: Getaway-----	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	57***	76	70	---	---	---	---	---
Snell.									
96: Gwin.									
Klickson-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	57***	40	112	84***	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Kettenbach.									
106: Gwinly.									
Sopher-----	Douglas-fir**-----	83***	88	95	108***	---	---	---	---
	Ponderosa pine**-----	---	---	---	102***	46,800	120	106	40
107: Gwinly.									
Sopher-----	Douglas-fir**-----	72***	65	102	95***	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Rock outcrop.									
108: Hapludolls, frigid-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Endoaquolls, frigid.									
Endoaquents, frigid-----	Thinleaf alder-----	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			<i>Cu ft/acre</i>	<i>Yr</i>		<i>Fbm/acre</i>	<i>Yr</i>	<i>Cu ft/acre</i>	<i>Yr</i>
109, 110:									
Harl-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Anatone.									
Rock outcrop.									
111:									
Harl-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Getaway-----	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	57***	76	70	---	---	---	---	---
112:									
Harl-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Limberjim-----	Grand fir**-----	54***	64	121	---	---	---	---	---
	Douglas-fir**-----	82***	86	96	107***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
Rock outcrop.									
121, 122:									
Harlow.									
Klicker-----	Ponderosa pine**-----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
127:									
Harlow.									
Tamarackcanyon--	Ponderosa pine**-----	---	---	---	89***	42,600	150	83	40
	Douglas-fir**-----	65***	52	106	88***	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Linecreek-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
128:									
Harlow.									
Tamarackcanyon--	Ponderosa pine**-----	---	---	---	89***	42,600	150	83	40
	Douglas-fir**-----	65***	52	106	88***	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Olot-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	75***	31,700	160	62	50
	Western larch-----	69	99	70	---	---	---	---	---
129:									
Harlow.									
Threebuck-----	Douglas-fir**-----	74	69	101	94	---	---	---	---
	Ponderosa pine**-----	---	---	---	111***	52,000	110	124	40
	Western larch**-----	73***	107	70	---	---	---	---	---
	Grand fir-----	73***	100	111	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
148:									
Kahler-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Anatone.									
149:									
Kahler-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Anatone.									
Rock outcrop.									
150, 151:									
Kahler-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Linecreek-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Getaway-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Western larch**-----	57***	76	70	---	---	---	---	---
152:									
Klicker-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
153, 154:									
Klicker-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
155, 156:									
Klicker-----	Ponderosa pine**-----	---	---	---	72***	29,100	160	58	50
	Douglas-fir**-----	---	---	---	---	---	---	---	---
157:									
Klicker-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Anatone.									
158, 159:									
Klicker-----	Ponderosa pine**-----	---	---	---	72***	29,100	160	58	50
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Anatone.									
160:									
Klicker-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Fivebit-----	Ponderosa pine**-----	---	---	---	74***	30,900	160	60	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
Anatone.									
161:									
Klicker-----	Ponderosa pine**-----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
161: Fivebit-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Anatone.									
162: Klicker-----	Ponderosa pine**----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
Harlow.									
163: Klicker-----	Ponderosa pine**----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
Kamela-----	Douglas-fir**-----	60***	44	110	81***	---	---	---	---
	Grand fir-----	54***	64	121	---	---	---	---	---
	Ponderosa pine**----	---	---	---	70***	27,500	160	55	50
	Western larch*-----	47***	58	70	---	---	---	---	---
Fivebit-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
164: Klicker-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir*-----	---	---	---	---	---	---	---	---
Olot-----	Douglas-fir**-----	76***	73	99	93***	---	---	---	---
	Ponderosa pine**----	---	---	---	---	---	---	---	---
165: Klicker-----	Ponderosa pine**----	---	---	---	72***	---	---	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
Thirstygulch----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
Anatone.									
166: Klicker-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Thirstygulch----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
Anatone.									
167: Klicker-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Rock outcrop.									
Anatone.									
168,169: Klickson-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Anatone.									
Larabee-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
170:									
Klickson-----	Ponderosa pine**----	---	---	---	88***	41,700	150	82	40
	Douglas-fir**-----	57***	40	112	84***	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Larabee-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
171:									
Klickson-----	Ponderosa pine**----	---	---	---	88***	41,700	150	82	40
	Douglas-fir**-----	57***	40	112	84***	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Larabee-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Volstead-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
174:									
Larabee-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Getaway-----	Ponderosa pine**----	---	---	---	91***	39,000	130	87	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	57***	76	70	---	---	---	---	---
Klickson-----	Ponderosa pine**----	---	---	---	88***	41,700	150	82	40
	Douglas-fir**-----	57***	40	112	84***	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
175, 176:									
Larabee-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Klickson-----	Ponderosa pine**----	---	---	---	88***	41,700	150	82	40
	Douglas-fir**-----	57***	40	112	84***	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Volstead-----	Ponderosa pine**----	---	---	---	88***	41,700	150	82	40
	Douglas-fir**-----	---	---	---	84***	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
177:									
Larabee-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Melhorn-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
178:									
Larabee-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Volstead-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
187:									
Limberjim-----	Grand fir**-----	54***	64	121	---	---	---	---	---
	Douglas-fir**-----	82***	86	96	107***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
188:									
Limberjim-----	Grand fir**-----	54***	64	121	---	---	---	---	---
	Douglas-fir**-----	82***	86	96	107***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Lodgepole pine-----	---	---	---	90***	---	---	79	100
	Engelmann spruce-----	---	---	---	---	---	---	---	---
Anatone.									
189, 190:									
Limberjim-----	Grand fir**-----	54***	64	121	---	---	---	---	---
	Douglas-fir**-----	82***	86	96	107***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
Syrupcreek-----	Grand fir**-----	60	76	120	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	50	63	70	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
191:									
Limberjim-----	Grand fir**-----	54***	64	121	---	---	---	---	---
	Douglas-fir**-----	82***	86	96	107***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
Tamara-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	58***	41	111	81***	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
192:									
Linecreek-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Getaway-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	91***	39,000	130	87	40
	Western larch**-----	57***	76	70	---	---	---	---	---
193, 194:									
Lookingglass----	Ponderosa pine**-----	---	---	---	99***	47,300	130	101	40
	Douglas-fir-----	---	---	---	---	---	---	---	---
195:									
Lookingglass, stony-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
196:									
Lookingglass, cobbly-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Lookingglass----	Ponderosa pine**-----	---	---	---	99***	47,300	130	101	40
	Douglas-fir-----	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
197:									
Lookingglass----	Ponderosa pine**-----	---	---	---	99***	47,300	130	101	40
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Sopher-----	Douglas-fir**-----	72***	65	102	95***	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
198:									
Lookingglass----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Sopher-----	Ponderosa pine**-----	---	---	---	102***	46,800	120	106	40
	Douglas-fir-----	83***	88	95	108***	---	---	---	---
204:									
Matterhorn-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western juniper-----	---	---	---	---	---	---	---	---
205, 206:									
Minam-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
207, 208:									
Minam-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
209:									
Minam-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
210, 211:									
Minam-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
212:									
Minam, gravelly-	Douglas-fir**-----	68***	58	104	92***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Minam-----	Douglas-fir**-----	68***	58	104	92***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Endoaquepts.									
213:									
Minam, gravelly	Douglas-fir**-----	68***	58	104	92***	---	---	---	---
	Western larch**-----	58***	78	70	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Minam, stony----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Endoaquepts.									
214:									
Mippon-----	Engelmann spruce***	---	---	---	112***	---	---	130	80
	Black cottonwood***	---	---	---	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
	Grand fir-----	78***	110	108	---	---	---	---	---

See footnotes at end of table.



Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
215, 216, 217:									
Mountemily-----	Subalpine fir**-----	---	---	---	76***	---	---	70	105
	Engelmann spruce***	---	---	---	75***	---	---	69	105
	Grand fir-----	47***	---	---	---	---	---	---	---
	Lodgepole pine-----	---	---	---	75***	---	---	64	100
Troutmeadows----	Subalpine fir**-----	---	---	---	82***	---	---	79	100
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Grand fir-----	48***	---	---	---	---	---	---	---
	Lodgepole pine-----	---	---	---	79***	---	---	68	100
218:									
Mountemily-----	Subalpine fir**-----	---	---	---	76***	---	---	70	105
	Engelmann spruce***	---	---	---	75***	---	---	69	105
	Grand fir-----	47***	---	---	---	---	---	---	---
	Lodgepole pine-----	---	---	---	75***	---	---	64	100
Troutmeadows----	Subalpine fir**-----	---	---	---	82***	---	---	79	100
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Grand fir-----	48***	---	---	---	---	---	---	---
	Lodgepole pine-----	---	---	---	79***	---	---	68	100
Anatone, cold.									
221, 222:									
Olot-----	Douglas-fir**-----	76***	73	99	93***	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
223:									
Olot-----	Douglas-fir**-----	76***	73	99	93***	---	---	---	---
	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine-----	---	---	---	---	---	---	---	---
Anatone.									
224:									
Olot-----	Ponderosa pine**-----	---	---	---	75***	31,700	160	62	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
	Grand fir-----	63***	81	118	---	---	---	---	---
Anatone.									
246:									
Rock outcrop.									
Anatone.									
Fivebit-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
250:									
Rock outcrop.									
Linecreek-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Anatone.									
261, 262, 263:									
Rondowa-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	69***	59	104	88***	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
264, 265:									
Rondowa-----	Ponderosa pine**----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
275:									
Slicklog-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
276:									
Slicklog-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Eastpine-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
277:									
Slicklog-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Eastpine-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Western Larch**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Rock outcrop.									
278:									
Slicklog-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Wintercanyon----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Rock outcrop.									
290, 291:									
Sopher-----	Ponderosa pine**-----	---	---	---	102***	46,800	120	106	40
	Douglas-fir-----	83***	88	95	108***	---	---	---	---
292:									
Sopher-----	Douglas-fir**-----	72***	65	102	95***	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Gwinly.									
293,294:									
Sopher-----	Ponderosa pine**-----	---	---	---	102***	46,800	120	106	40
	Douglas-fir-----	83***	88	95	108***	---	---	---	---
Gwinly.									
296:									
Sturgill.									
Eggelson-----	Engelmann spruce***--	---	---	---	---	---	---	---	---
	Black cottonwood***--	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
299, 300:									
Sweiting-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
301:									
Sweiting-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Harlow.									
302:									
Sweiting-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Harlow.									
303:									
Sweiting-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir-----	---	---	---	---	---	---	---	---
Klicker-----	Ponderosa pine**-----	---	---	---	72***	29,100	160	58	50
	Douglas-fir-----	---	---	---	---	---	---	---	---
304:									
Syrupcreek-----	Grand fir**-----	60***	76	120	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Western larch**-----	50***	63	70	---	---	---	---	---
305:									
Syrupcreek-----	Grand fir**-----	60***	76	120	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Western larch**-----	50***	63	70	---	---	---	---	---
Anatone.									
306:									
Syrupcreek-----	Grand fir**-----	60***	76	120	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Western larch**-----	50***	63	70	---	---	---	---	---
Lowerbluff-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
307, 308:									
Syrupcreek-----	Grand fir**-----	60***	76	120	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Western larch**-----	50***	63	70	---	---	---	---	---
Tamara-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	58***	41	111	81***	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
309:									
Tamara-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	58***	41	111	81***	---	---	---	---
	Engelmann spruce-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Sherod.									

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
310:									
Tamara-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	58***	41	111	81***	---	---	---	---
	Engelmann spruce----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
Syrupcreek-----	Grand fir**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
311:									
Tamarackcanyon--	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Grand fir-----	---	---	---	---	---	---	---	---
Linecreek-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Harlow.									
312:									
Tamarackcanyon--	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Lowerbluff-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
313, 314:									
Tamarackcanyon--	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Grand fir-----	---	---	---	---	---	---	---	---
Olot-----	Ponderosa pine**-----	---	---	---	75***	31,700	160	62	50
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Grand fir-----	63***	81	118	---	---	---	---	---
Harlow.									
318:									
Threebuck-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Harlow.									
319:									
Threebuck-----	Douglas-fir**-----	74	69	101	94	---	---	---	---
	Ponderosa pine**-----	---	---	---	111***	52,000	110	124	40
	Grand fir-----	73***	100	111	---	---	---	---	---
	Western larch-----	73***	107	70	---	---	---	---	---
Linecreek-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Harlow.									
320, 321:									
Threebuck-----	Douglas-fir**-----	74	69	101	94	---	---	---	---
	Ponderosa pine**-----	---	---	---	111***	52,000	110	124	40
	Grand fir-----	73***	100	111	---	---	---	---	---
	Western larch-----	73***	107	70	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			<i>Cu ft/acre</i>	<i>Yr</i>		<i>Fbm/acre</i>	<i>Yr</i>	<i>Cu ft/acre</i>	<i>Yr</i>
320, 321:									
Tamarackcanyon--	Douglas-fir**-----	75***	71	100	88***	---	---	---	---
	Ponderosa pine**-----	---	---	---	89***	42,600	150	83	40
	Grand fir-----	64***	83	117	---	---	---	---	---
322:									
Threebuck-----	Douglas-fir**-----	74	69	101	94	---	---	---	---
	Ponderosa pine**-----	---	---	---	111***	52,000	110	124	40
	Grand fir-----	73***	100	111	---	---	---	---	---
	Western larch-----	73***	107	70	---	---	---	---	---
Tamarackcanyon--	Douglas-fir**-----	75***	71	100	88***	---	---	---	---
	Ponderosa pine**-----	---	---	---	89***	42,600	150	83	40
	Grand fir-----	64***	83	117	---	---	---	---	---
Harlow.									
323:									
Threebuck-----	Douglas-fir**-----	74	69	101	94	---	---	---	---
	Ponderosa pine**-----	---	---	---	103***	47,900	120	108	40
	Grand fir-----	73***	100	111	---	---	---	---	---
	Western larch-----	73***	107	70	---	---	---	---	---
Tamarackcanyon--	Douglas-fir**-----	75***	71	100	88***	---	---	---	---
	Ponderosa pine**-----	---	---	---	89***	42,600	150	83	40
	Grand fir-----	64***	83	117	---	---	---	---	---
Linecreek-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Grand fir-----	---	---	---	---	---	---	---	---
326, 327, 328:									
Tolo-----	Douglas-fir**-----	71***	63	102	89***	---	---	---	---
	Western larch**-----	72***	105	70	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
329, 330:									
Tolo-----	Douglas-fir**-----	71***	63	102	89***	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Western larch**-----	72***	105	70	---	---	---	---	---
	Grand fir**-----	86***	125	100	---	---	---	---	---
Getaway-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
331, 332:									
Tolo-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Getaway-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
333:									
Tolo-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Olot-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
334:									
Tolo-----	Douglas-fir-----	---	---	---	---	---	---	---	---
	Western larch**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Olot-----	Ponderosa pine**-----	---	---	---	75***	31,700	160	62	50
	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Grand fir-----	63***	81	118	---	---	---	---	---

See footnotes at end of table.

Table 9.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity*							
		Site index (50-year)	Annual growth	CMAI age	Site index (100-year)	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Cu ft/acre	Yr		Fbm/acre	Yr	Cu ft/acre	Yr
339:									
Troutmeadows----	Subalpine fir**-----	---	---	---	82***	---	---	79	100
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Lodgepole pine**-----	---	---	---	78***	---	---	65	50
Crawfish.									
343:									
Vandamine-----	Subalpine fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Lodgepole pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Bordengulch----	Subalpine fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Lodgepole pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
344:									
Vandamine-----	Subalpine fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Lodgepole pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Bordengulch----	Subalpine fir**-----	---	---	---	---	---	---	---	---
	Engelmann spruce***	---	---	---	---	---	---	---	---
	Lodgepole pine**-----	---	---	---	---	---	---	---	---
	Western larch-----	---	---	---	---	---	---	---	---
Rock outcrop.									
347, 348:									
Volstead-----	Douglas-fir**-----	---	---	---	---	---	---	---	---
	Ponderosa pine**-----	---	---	---	---	---	---	---	---
Quirk-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---
Bocker.									
356:									
Wolot-----	Ponderosa pine**-----	---	---	---	---	---	---	---	---
	Douglas-fir**-----	---	---	---	---	---	---	---	---

\*Yield data based on fully stocked, even-aged stand.

\*\*Recommended trees for planting and management.

\*\*\*Site index based on less than five plots.

Table 10.--Windbreaks and Environmental Plantings

(Only the soils suited to windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
21: Balm.					
Catherine-----	Peking cotoneaster, redosier dogwood	Siberian peashrub, Amur honeysuckle	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, black willow
40: Chard-----	Peking cotoneaster, skunkbush sumac, Amur honeysuckle	Blue spruce, Rocky Mountain juniper	Austrian pine, green ash, Scotch pine	Ponderosa pine	Honey locust
45: Chesnimnus-----	Silver buffaloberry, Amur honeysuckle	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Ponderosa pine	Honey locust
46: Chesnimnus-----	Silver buffaloberry, Amur honeysuckle	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Ponderosa pine	Honey locust
47: Cheval-----	Skunkbush sumac	Lilac, Siberian peashrub, Amur honeysuckle	Eastern redcedar, golden willow, Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	Honey locust
50: Conley-----	European privet, Peking cotoneaster, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
51: Conley-----	European privet, Peking cotoneaster, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
60: Demasters-----	Peking cotoneaster, redosier dogwood	Lilac, Rocky Mountain juniper, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
Snell.					

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
63: Doublecreek.					
Langrell-----	European privet	Lilac, Siberian peashrub, Amur honeysuckle	Blue spruce, eastern redcedar, Rocky Mountain juniper,	Austrian pine, green ash, ponderosa pine	---
71: Eggleson-----	Fourwing saltbush	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---
82: Freels-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine,	Honey locust, imperial Carolina poplar
84: Gelsinger-----	European privet, Peking cotoneaster, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
85: Gelsinger-----	European privet, Peking cotoneaster, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
94: Gwin-----	Lilac, Nanking cherry, Siberian peashrub, skunkbush sumac, Amur honeysuckle	Green ash, Rocky Mountain juniper,	Austrian pine, black locust, ponderosa pine	---	---
Kettenbach. Rock outcrop.					
95: Gwin-----	Lilac, Nanking cherry, Siberian peashrub, skunkbush sumac, Amur honeysuckle	Green ash, Rocky Mountain juniper	Austrian pine, black locust, ponderosa pine	---	---
Kettenbach. Rock outcrop.					



Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
96: Gwin-----  Klickson. Kettenbach.	Lilac, Nanking cherry, Siberian peashrub, skunkbush sumac, Amur honeysuckle	Green ash, Rocky Mountain juniper,	Austrian pine, black locust, ponderosa pine	---	---
98: Gwinly.  Mallory-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub, Amur honeysuckle	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
99: Gwinly.  Mallory-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub, Amur honeysuckle	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
103: Gwinly.  Mallory-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub, Amur honeysuckle	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
Rock outcrop.					
131: Hershal.  Voats-----	Fourwing saltbush	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---
132: Hershal.  Voats-----	Fourwing saltbush	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
132: Veazie-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine	Green ash, honeylocust, ponderosa pine, Scotch pine,	Honey locust
134: Hurwal-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
135: Hurwal-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
147: Josset-----	Silver buffaloberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Honey locust, ponderosa pine	---
172: Langrell-----	European privet	Lilac, Siberian peashrub, Amur honeysuckle	Blue spruce, eastern redcedar, Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	---
173: Langrell-----	European privet	Lilac, Siberian peashrub, Amur honeysuckle	Blue spruce, eastern redcedar, Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	---
Snow-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
183: Lawyer, stony-----	Peking cotoneaster	Lilac, Nanking cherry, Rocky Mountain juniper, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
Lawyer-----	Peking cotoneaster	Lilac, Nanking cherry, Rocky Mountain juniper, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
Gwinly.					

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
200: Mallory.  Gwinly.					
Lawyer-----	Peking cotoneaster	Lilac, Nanking cherry, Rocky Mountain juniper, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
201: Mallory.  Gwinly.					
Lawyer-----	Peking cotoneaster	Lilac, Nanking cherry, Rocky Mountain juniper, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
202: Mallory.					
Lawyer-----	Peking cotoneaster	Lilac, Nanking cherry, Rocky Mountain juniper, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust
Rock outcrop.					
203: Matheny-----	Skunkbush sumac	Lilac, Siberian peashrub, Amur honeysuckle	Rocky Mountain juniper, Scotch pine	Austrian pine, green ash, ponderosa pine	Honey locust
Linville-----	Peking cotoneaster, skunkbush sumac	Lilac, Nanking cherry, Siberian peashrub, Amur honeysuckle	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
Laufer.					
205: Minam-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
206: Minam-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
207: Minam-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
208: Minam-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
210: Minam-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
211: Minam-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
212: Minam-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Minam, gravelly-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Endoaquepts-----	---	---	---	---	---
213: Minam, gravelly-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Minam, stony-----	---	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Endoaquepts.					

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
227: Phys-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
235: Ramo-----	European privet, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
236: Ramo-----	European privet, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
237: Ramo-----	European privet, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
238: Ramo-----	European privet, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
Conley-----	European privet, Peking cotoneaster, Saskatoon serviceberry	Lilac, Rocky Mountain juniper, Siberian peashrub	Blue spruce	Austrian pine, ponderosa pine, Scotch pine	Honey locust
240: Redmount-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine	Green ash, honeylocust, ponderosa pine, Scotch pine	Honey locust
241: Redmount-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine	Green ash, honeylocust, ponderosa pine, Scotch pine	Honey locust
242: Redmount-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine	Green ash, honeylocust, ponderosa pine, Scotch pine	Honey locust

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
243: Redmount-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine	Green ash, honeylocust, ponderosa pine, Scotch pine	Honey locust
Cheval-----	Skunkbush sumac	Lilac, Siberian peashrub, Tatarian honeysuckle	Eastern redcedar, golden willow, Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	Honey locust
254: Rondowa-----	Peking cotoneaster, Saskatoon serviceberry	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
255: Rondowa-----	Peking cotoneaster, Saskatoon serviceberry	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
256: Rondowa-----	Peking cotoneaster, Saskatoon serviceberry	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
257: Rondowa-----	Peking cotoneaster, Saskatoon serviceberry	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
258: Rondowa-----	Peking cotoneaster, Saskatoon serviceberry	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
259: Rondowa-----	Peking cotoneaster, Saskatoon serviceberry	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
260: Rondowa-----	Peking cotoneaster, Saskatoon serviceberry	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
270: Schrier-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
271: Schrier-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Almota.					
272: Schrier-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Almota.					
Rock outcrop.					
273: Schuelke.					
Schrier-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Rockly.					
289: Snow-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
296: Sturgill.					
Eggleston-----	Fourwing saltbush	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---
297: Sweitberg-----	European privet, Peking cotoneaster, skunkbush sumac	Lilac, Rocky Mountain juniper, Siberian peashrub, Tatarian honeysuckle	Blue spruce	Austrian pine, ponderosa pine	Honey locust

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
298: Sweetberg-----	European privet, Peking cotoneaster, skunkbush sumac	Lilac, Rocky Mountain juniper, Siberian peashrub, Tatarian honeysuckle	Blue spruce	Austrian pine, ponderosa pine	Honey locust
315: Tannahill.					
Schrier-----	Peking cotoneaster	Lilac, Siberian peashrub	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine, Scotch pine	Honey locust, imperial Carolina poplar
Rock outcrop.					
325: Tippett.					
Zumwalt-----	Nanking cherry, Siberian peashrub	Lilac, Rocky Mountain juniper, Tatarian honeysuckle	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---
335: Topper-----	---	Lilac, Nanking cherry, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine	Honey locust, imperial Carolina poplar
336: Topper-----	---	Lilac, Nanking cherry, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine	Honey locust, imperial Carolina poplar
337: Topper-----	---	Lilac, Nanking cherry, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine	Honey locust, imperial Carolina poplar
338: Topper-----	---	Lilac, Nanking cherry, Siberian peashrub	---	Austrian pine, green ash, ponderosa pine	Honey locust, imperial Carolina poplar
345: Veazie-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine	Green ash, honeylocust, ponderosa pine, Scotch pine	Honey locust



Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
346: Voats-----	Fourwing saltbush	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---
Veazie-----	Peking cotoneaster	Lilac, Rocky Mountain juniper, Siberian peashrub	Austrian pine	Green ash, honeylocust, ponderosa pine, Scotch pine	Honey locust
349: Wallowa-----	Lilac, Siberian peashrub, skunkbush sumac, Tatarian honeysuckle	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	Honey locust, Scotch pine	---
Bocker.					
350: Watama-----	Lilac, Siberian peashrub, skunkbush sumac, Tatarian honeysuckle	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	Honey locust, Scotch pine	---
351: Watama-----	Lilac, Siberian peashrub, skunkbush sumac, Tatarian honeysuckle	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	Honey locust, Scotch pine	---
352: Watama-----	Lilac, Siberian peashrub, skunkbush sumac, Tatarian honeysuckle	Rocky Mountain juniper	Austrian pine, green ash, ponderosa pine	Honey locust, Scotch pine	---
Rockly.					
357: Zumwalt-----	Nanking cherry, Siberian peashrub	Lilac, Rocky Mountain juniper, Tatarian honeysuckle	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---
Harlow.					
358: Zumwalt-----	Nanking cherry, Siberian peashrub	Lilac, Rocky Mountain juniper, Tatarian honeysuckle	Austrian pine, green ash	Honey locust, ponderosa pine, Scotch pine	---
Harlow.					

Table 11a.--Recreation (Part I)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slope Slow water movement	0.88 0.41
2: Akerite-----	85	Somewhat limited Slope Slow water movement	0.63 0.41	Somewhat limited Slope Slow water movement	0.63 0.41	Very limited Slope Slow water movement	1.00 0.41
3: Albee-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.01
Anatone-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
4: Albee-----	50	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.01
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82 0.56
5: Analulu-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.29
Slicklog-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bluecanyon-----	30	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.96	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.96	Very limited Gravel content Slope Depth to bedrock	1.00 1.00 1.00
6: Analulu-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.29
Slicklog-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7: Anatone-----	50	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.04	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68  0.01
Bocker-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.82  0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.82  0.04	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82  0.56
8: Anatone-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68  0.01
Bocker-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82  0.56
9: Anatone-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68  0.01
Bocker-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82  0.56
10: Anatone-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.01	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68  0.01
Bocker-----	30	Very limited Depth to bedrock Large stones content Slope	1.00 0.82  0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.82  0.01	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82  0.56
Fivebit-----	20	Very limited Gravel content Depth to bedrock Slope	1.00 1.00 0.01	Very limited Gravel content Depth to bedrock Slope	1.00 1.00 0.01	Very limited Gravel content Slope Depth to bedrock	1.00 1.00 1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11: Anatone-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
Fivebit-----	20	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00
12: Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Cherrycreek-----	30	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 1.00 0.18
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
13: Anatone-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	10	Not rated		Not rated		Not rated	
14: Anatone-----	45	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Kamela-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.94

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15: Anatone-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Klicker-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Rock outcrop-----	10	Not rated		Not rated		Not rated	
16: Anatone-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Linecreek-----	25	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53
Rock outcrop-----	10	Not rated		Not rated		Not rated	
17: Anatone-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Olot-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
18: Anatone-----	45	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Clearline-----	15	Very limited Slope Gravel content	1.00 0.26	Very limited Slope Gravel content	1.00 0.26	Very limited Gravel content Slope	1.00 1.00
19: Anatone-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Fivebit-----	20	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20: Anatone-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
21: Balm-----	50	Very limited Flooding Depth to saturated zone	1.00 0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.98
Catherine-----	40	Very limited Flooding Depth to saturated zone	1.00 0.77	Somewhat limited Depth to saturated zone	0.43	Somewhat limited Depth to saturated zone Flooding	0.77 0.60
22: Bittercreek-----	65	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00
Mippon-----	20	Very limited Flooding	1.00	Not limited		Not limited	
23: Bocker-----	85	Very limited Depth to bedrock Large stones content	1.00 0.82	Very limited Depth to bedrock Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 0.88 0.82 0.56
24: Bocker-----	60	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82 0.56
Anatone-----	15	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
25: Bocker-----	60	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25: Anatone-----	15	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
26: Bocker-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
Clearline-----	20	Very limited Slope Gravel content	1.00 0.26	Very limited Slope Gravel content	1.00 0.26	Very limited Gravel content Slope	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
27: Bocker-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
Imnaha-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	15	Not rated		Not rated		Not rated	
28: Bridgewater-----	90	Very limited Flooding Large stones content Slope	1.00 1.00 0.01	Very limited Large stones content Slope	1.00 0.01	Very limited Large stones content Slope Flooding Gravel content	1.00 1.00 0.60 0.35
29: Btree-----	45	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94
Flycreek-----	40	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement Depth to bedrock	1.00 0.94 0.01
30: Btree-----	45	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94
Flycreek-----	40	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement Depth to bedrock	1.00 0.94 0.01

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
31: Btree-----	30	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94
Flycreek-----	30	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement Depth to bedrock	1.00 0.94 0.01
Anatone-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
32: Btree-----	30	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94
Flycreek-----	30	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement Depth to bedrock	1.00 0.94 0.01
Anatone-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
33: Btree-----	40	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94
Klicker-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
34: Bucketlake-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
35: Bucketlake-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00



Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36: Buford-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Anatone-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
37: Buford-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82 0.56
38: Bunchpoint-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope Depth to bedrock	1.00 0.20
39: Bunchpoint-----	45	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope Depth to bedrock	1.00 0.20
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.01	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82 0.56
40: Chard-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
41: Cherrycreek-----	50	Somewhat limited Gravel content Large stones content Slope	0.20 0.18 0.04	Somewhat limited Gravel content Large stones content Slope	0.20 0.18 0.04	Very limited Gravel content Slope Large stones content	1.00 1.00 0.18
Imnaha-----	35	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
42: Cherrycreek-----	50	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 1.00 0.18
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Imnaha, moist-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43: Cherrycreek-----	40	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 1.00 0.18
Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	10	Not rated		Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 1.00 0.18
Limberjim-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
45: Chesnimnus-----	85	Not limited		Not limited		Not limited	
46: Chesnimnus-----	85	Not limited		Not limited		Not limited	
47: Cheval-----	85	Very limited Flooding Depth to saturated zone	1.00 0.39	Somewhat limited Depth to saturated zone	0.19	Somewhat limited Flooding Depth to saturated zone	0.60 0.39
48: Cloverland-----	90	Somewhat limited Slow water movement Depth to saturated zone	0.41 0.07	Somewhat limited Slow water movement Depth to saturated zone	0.41 0.03	Somewhat limited Slope Slow water movement Depth to saturated zone	0.88 0.41 0.07
49: Cloverland-----	90	Somewhat limited Slope Slow water movement Depth to saturated zone	0.63 0.41 0.07	Somewhat limited Slope Slow water movement Depth to saturated zone	0.63 0.41 0.03	Very limited Slope Slow water movement Depth to saturated zone	1.00 0.41 0.07
50: Conley-----	90	Somewhat limited Slow water movement Depth to saturated zone	0.45 0.39	Somewhat limited Slow water movement Depth to saturated zone	0.45 0.19	Somewhat limited Slow water movement Depth to saturated zone	0.45 0.39
51: Conley-----	90	Somewhat limited Slow water movement Depth to saturated zone	0.45 0.39	Somewhat limited Slow water movement Depth to saturated zone	0.45 0.19	Somewhat limited Slope Slow water movement Depth to saturated zone	0.88 0.45 0.39

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
52: Copperfield-----	50	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Gravel content Large stones content	1.00 0.86 0.18
Thiessen-----	35	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39 0.03 0.02	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39 0.03 0.02	Very limited Slope Gravel content Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.39 0.16 0.02
53: Copperfield-----	40	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Gravel content Large stones content	1.00 0.86 0.18
Thiessen-----	30	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39 0.03 0.02	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39 0.03 0.02	Very limited Slope Gravel content Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.39 0.16 0.02
Rock outcrop-----	15	Not rated		Not rated		Not rated	
54: Cowsly-----	90	Somewhat limited Dusty Slow water movement Depth to saturated zone	0.50 0.45 0.39	Somewhat limited Dusty Slow water movement Depth to saturated zone	0.50 0.45 0.19	Somewhat limited Slope Dusty Slow water movement Depth to saturated zone	0.88 0.50 0.45 0.39
55: Cowsly-----	90	Somewhat limited Slope Dusty Slow water movement Depth to saturated zone	0.63 0.50 0.45 0.39	Somewhat limited Slope Dusty Slow water movement Depth to saturated zone	0.63 0.50 0.45 0.19	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.39
56: Cowsly-----	85	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope Large stones content	0.50 0.45 0.39 0.04 0.02	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope Large stones content	0.50 0.45 0.19 0.04 0.02	Very limited Slope Dusty Slow water movement Depth to saturated zone Large stones content	1.00 0.50 0.45 0.39 0.02

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
57: Cowsly, cobbly-----	60	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.39	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.19	Very limited Slope Dusty Slow water movement Gravel content Depth to saturated zone	1.00 0.50 0.45 0.44 0.39
Cowsly-----	25	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.39 0.04	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.19 0.04	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.39
58: Cowsly, cobbly-----	60	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.39	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.19	Very limited Slope Dusty Slow water movement Gravel content Depth to saturated zone	1.00 0.50 0.45 0.44 0.39
Cowsly-----	25	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.39 0.04	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.19 0.04	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.39
59: Cowsly-----	60	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.39 0.04	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.19 0.04	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.39
Howmeadows-----	15	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Slow water movement	1.00 1.00
Sherod-----	15	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 0.41	Very limited Depth to bedrock Depth to saturated zone Slow water movement	1.00 0.94 0.41	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 0.41
60: Demasters-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Snell-----	35	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.01 0.01

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61: Dixiejett-----	35	Very limited Slope Gravel content	1.00 0.38	Very limited Slope Gravel content	1.00 0.38	Very limited Slope Gravel content	1.00 1.00
Lickskillet-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.80 0.68
Rockly-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.56 0.18
62: Doublecreek-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Flybow-----	30	Very limited Slope Gravel content Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Slope Gravel content Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Gravel content Slope Depth to bedrock Dusty	1.00 1.00 1.00 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
63: Doublecreek-----	55	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Langrell-----	30	Somewhat limited Gravel content	0.25	Somewhat limited Gravel content	0.25	Very limited Gravel content	1.00
64: Doublecreek-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Phys-----	40	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
65: Downards-----	45	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	20	Not rated		Not rated		Not rated	
66: Downards-----	50	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15
Emily-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66: Sopher-----	20	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
67: Downards-----	60	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15
Klicker-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
68: Downards-----	60	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15	Very limited Slope Slow water movement	1.00 0.15
Klicker-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
69: Downeygulch-----	50	Somewhat limited Gravel content Slope	0.08 0.01	Somewhat limited Gravel content Slope	0.08 0.01	Very limited Gravel content Slope Depth to bedrock	1.00 1.00 0.90
Lowerbluff-----	35	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Slope Depth to bedrock	1.00 1.00
70: Downeygulch-----	55	Very limited Slope Gravel content	1.00 0.08	Very limited Slope Gravel content	1.00 0.08	Very limited Gravel content Slope Depth to bedrock	1.00 1.00 0.90
Thirstygulch-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 0.99 0.53
71: Eggleston-----	85	Very limited Flooding Gravel content	1.00 0.08	Somewhat limited Gravel content	0.08	Very limited Gravel content	1.00
72: Emily-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Wolot-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
73: Endoaquolls, mesic--	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	1.00
74: Ferguson-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75: Ferguson-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
76: Ferguson-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
77: Ferguson-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
78: Ferguson-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
79: Flybow-----	40	Very limited Slope Gravel content Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Slope Gravel content Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Gravel content Slope Depth to bedrock Dusty	1.00 1.00 1.00 0.50
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
80: Flybow-----	40	Very limited Slope Gravel content Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Slope Gravel content Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Gravel content Slope Depth to bedrock Dusty	1.00 1.00 1.00 0.50
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
81: Flycreek-----	65	Somewhat limited Slow water movement Slope	0.94 0.04	Somewhat limited Slow water movement Slope	0.94 0.04	Very limited Slope Slow water movement Depth to bedrock	1.00 0.94 0.01
Flyvalley-----	20	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 1.00
82: Freels-----	85	Very limited Flooding	1.00	Not limited		Not limited	
83: Geisercreek-----	85	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94	Very limited Slope Slow water movement	1.00 0.94
84: Gelsinger-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slope Slow water movement	0.88 0.41
85: Gelsinger-----	85	Somewhat limited Slope Slow water movement	0.63 0.41	Somewhat limited Slope Slow water movement	0.63 0.41	Very limited Slope Slow water movement	1.00 0.41

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86: Getaway-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
87: Getaway-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
88: Getaway-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
89: Getaway-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Harlow-----	35	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
90: Getaway-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Harlow-----	35	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
91: Getaway-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Harlow-----	30	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Rock outcrop-----	15	Not rated		Not rated		Not rated	
92: Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Linecreek-----	30	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53



Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
92: Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
93: Getaway-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Snell-----	35	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.01 0.01
94: Gwin-----	55	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.08	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.08	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00
Kettenbach-----	20	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.59 0.42
Rock outcrop-----	10	Not rated		Not rated		Not rated	
95: Gwin-----	55	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.08	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.08	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00
Kettenbach-----	20	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.59 0.42
Rock outcrop-----	10	Not rated		Not rated		Not rated	
96: Gwin-----	35	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.08	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.08	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00
Klickson-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Kettenbach-----	20	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.59 0.42

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97: Gwinly-----	40	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Kettenbach-----	35	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.59 0.42
Rock outcrop-----	10	Not rated		Not rated		Not rated	
98: Gwinly-----	40	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Depth to bedrock Slope Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Mallory-----	35	Very limited Slope Large stones content Slow water movement	1.00 0.50 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.50 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.50 0.41 0.06
99: Gwinly-----	40	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Mallory-----	35	Very limited Slope Large stones content Slow water movement	1.00 0.50 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.50 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.50 0.41 0.06
100: Gwinly-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
100: Mallory-----	25	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.53 0.41 0.06
Kettenbach-----	25	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.59 0.42
101: Gwinly-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Mallory-----	25	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.53 0.41 0.06
Kettenbach-----	25	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.59 0.42
102: Gwinly-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Mallory-----	25	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.53 0.41 0.06
Kettenbach-----	25	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 0.90 0.59 0.42

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
103: Gwinly-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Mallory-----	25	Very limited Slope Large stones content Slow water movement	1.00 0.50 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.50 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.50 0.41 0.06
Rock outcrop-----	25	Not rated		Not rated		Not rated	
104: Gwinly-----	50	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 0.41 0.32 0.04	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 0.41 0.32 0.04	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Rockly-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.18 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.18 0.04	Very limited Depth to bedrock Slope Gravel content Large stones content	1.00 1.00 0.56 0.18
105: Gwinly-----	40	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Rockly-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.56 0.18
Rock outcrop-----	20	Not rated		Not rated		Not rated	
106: Gwinly-----	60	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Sopher-----	25	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
107: Gwinly-----	55	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Sopher-----	25	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
Rock outcrop-----	10	Not rated		Not rated		Not rated	
108: Hapludolls, frigid--	35	Very limited Flooding	1.00	Not limited		Somewhat limited Slope	0.12
Endoaquolls, frigid	30	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding Slope	1.00 0.60 0.12
Endoaquents, frigid	20	Very limited Depth to saturated zone Flooding Gravel content	1.00 1.00 0.38	Very limited Depth to saturated zone Gravel content	1.00 0.38	Very limited Depth to saturated zone Gravel content Flooding Slope	1.00 1.00 0.60 0.12
109: Harl-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
110: Harl-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
111: Harl-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Getaway-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
112: Harl-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Limberjim-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
113: Harlow-----	60	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Bocker-----	25	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82 0.56
114: Harlow-----	60	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
115: Harlow-----	45	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Bocker-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
116: Harlow-----	50	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
116: Bocker-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.04	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82 0.56
117: Harlow-----	40	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Bocker-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
Rock outcrop-----	20	Not rated		Not rated		Not rated	
118: Harlow-----	40	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Immaha-----	35	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	10	Not rated		Not rated		Not rated	
119: Harlow-----	40	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Immaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	10	Not rated		Not rated		Not rated	
120: Harlow-----	40	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120: Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	10	Not rated		Not rated		Not rated	
121: Harlow-----	50	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
122: Harlow-----	50	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
123: Harlow-----	35	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Snell-----	25	Somewhat limited Large stones content Slope	0.53 0.04	Somewhat limited Large stones content Slope	0.53 0.04	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.53
Imnaha-----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
124: Harlow-----	35	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41



Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
124: Snell-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.53
Imnaha-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
125: Harlow-----	35	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Snell-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.53
Imnaha-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
126: Harlow-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.18 0.01	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.18 0.01	Very limited Slope Depth to bedrock Gravel content Slow water movement Large stones content	1.00 1.00 1.00 0.41 0.18
Snell-----	25	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
127: Harlow-----	40	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Tamarackcanyon-----	25	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Linecreek-----	20	Very limited Slope Gravel content Large stones content	1.00 0.75 0.32	Very limited Slope Gravel content Large stones content	1.00 0.75 0.32	Very limited Slope Gravel content Large stones content	1.00 1.00 0.32

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
128: Harlow-----	40	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Tamarackcanyon-----	25	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Olot-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
129: Harlow-----	50	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Threebuck-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
130: Hershal-----	85	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	0.99	Very limited Depth to saturated zone Flooding	1.00 0.60
131: Hershal-----	50	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	0.99	Very limited Depth to saturated zone Flooding	1.00 0.60
Voats-----	35	Very limited Flooding Too sandy	1.00 0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding Too sandy	0.60 0.01
132: Hershal-----	35	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	0.99	Very limited Depth to saturated zone Flooding	1.00 0.60
Voats-----	30	Very limited Flooding Too sandy	1.00 0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding Too sandy	0.60 0.01
Veazie-----	20	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
133: Howmeadows-----	50	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Slow water movement	1.00 1.00	Very limited Depth to saturated zone Slow water movement	1.00 1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
133: Wilkins-----	35	Very limited Depth to saturated zone Dusty Slow water movement	1.00  0.50 0.45	Somewhat limited Depth to saturated zone Dusty Slow water movement	0.94  0.50 0.45	Very limited Depth to saturated zone Dusty Slow water movement	1.00  0.50 0.45
134: Hurwal-----	90	Not limited		Not limited		Somewhat limited Slope	0.88
135: Hurwal-----	90	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
136: Hurwal, deep-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
137: Hurwal, deep-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
138: Hurwal-----	90	Not limited		Not limited		Somewhat limited Slope	0.88
139: Hurwal-----	90	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
140: Hurwal-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
141: Imnaha-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
142: Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Imhaha, moist-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
143: Imnaha-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
Clearline-----	20	Very limited Slope Gravel content	1.00 0.26	Very limited Slope Gravel content	1.00 0.26	Very limited Gravel content Slope	1.00 1.00
144: Imnaha-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Cherrycreek-----	30	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 1.00 0.18
Anatone-----	15	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
145: Imnaha-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Clearline-----	30	Very limited Slope Gravel content	1.00 0.26	Very limited Slope Gravel content	1.00 0.26	Very limited Gravel content Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
146: Imnaha-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Cherrycreek-----	20	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 1.00 0.18
147: Josset-----	85	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
148: Kahler-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
148: Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
149: Kahler-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
150: Kahler-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
Linecreek-----	30	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53
Getaway-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
151: Kahler-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
Linecreek-----	35	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53
Getaway-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
152: Klicker-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.84
153: Klicker-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
154: Klicker-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
155: Klicker-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156: Klicker-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
157: Klicker-----	50	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.84
Anatone-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
158: Klicker-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
159: Klicker-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
160: Klicker-----	35	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope Depth to bedrock	1.00 0.84
Fivebit-----	30	Very limited Gravel content Depth to bedrock Slope	1.00 1.00 0.01	Very limited Gravel content Depth to bedrock Slope	1.00 1.00 0.01	Very limited Gravel content Slope Depth to bedrock	1.00 1.00 1.00
Anatone-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.01	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
161: Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Fivebit-----	30	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
161: Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
162: Klicker-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Harlow-----	35	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
163: Klicker-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Kamela-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.94
Fivebit-----	15	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00
164: Klicker-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.84 0.22
Olot-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
165: Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Thirstygulch-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 0.99 0.53
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
166: Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
166: Thirstygulch-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 0.99 0.53
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
167: Klicker-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
168: Klickson-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Larabee-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
169: Klickson-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Larabee-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
170: Klickson-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Larabee-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
171: Klickson-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Larabee-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00



Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171: Volstead-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
172: Langrell-----	85	Somewhat limited Gravel content	0.25	Somewhat limited Gravel content	0.25	Very limited Gravel content	1.00
173: Langrell-----	50	Somewhat limited Gravel content	0.25	Somewhat limited Gravel content	0.25	Very limited Gravel content	1.00
Snow-----	35	Not limited		Not limited		Not limited	
174: Larabee-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Getaway-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Klickson-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
175: Larabee-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Klickson-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Volstead-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
176: Larabee-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Klickson-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Volstead-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
177: Larabee-----	45	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
Melhorn-----	40	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
178: Larabee-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Volstead-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
179: Laufer-----	50	Very limited Depth to bedrock Large stones content Slope	1.00 0.53 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.53 0.04	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.99 0.53

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
179: Thiessen-----	35	Somewhat limited Slow water movement Slope Gravel content Large stones content	0.39  0.04 0.03 0.02	Somewhat limited Slow water movement Slope Gravel content Large stones content	0.39  0.04 0.03 0.02	Very limited Gravel content Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.39  0.16 0.02
180: Laufer-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.99 0.53
Thiessen-----	35	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39  0.03 0.02	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39  0.03 0.02	Very limited Slope Gravel content Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.39  0.16 0.02
181: Laufer-----	45	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.99 0.53
Thiessen-----	40	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39  0.03 0.02	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39  0.03 0.02	Very limited Slope Gravel content Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.39  0.16 0.02
182: Laufer-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.99 0.53
Thiessen-----	30	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39  0.03 0.02	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39  0.03 0.02	Very limited Slope Gravel content Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.39  0.16 0.02
Rock outcrop-----	15	Not rated		Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Lawyer-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
183: Gwinly-----	25	Very limited Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 0.68 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 0.68 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 0.68 0.41
184: Lickskillet-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.80 0.68
Dixiejett-----	25	Very limited Slope Gravel content	1.00 0.38	Very limited Slope Gravel content	1.00 0.38	Very limited Slope Gravel content	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
185: Lickskillet-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.80 0.68
Doublecreek-----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Rockly-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.18 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.18 0.04	Very limited Depth to bedrock Slope Gravel content Large stones content	1.00 1.00 0.56 0.18
186: Lickskillet-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.80 0.68
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rockly-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.56 0.18
187: Limberjim-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
188: Limberjim-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
188: Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
189: Limberjim-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Syrupcreek-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.54
190: Limberjim-----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Syrupcreek-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.54
191: Limberjim-----	45	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
Tamara-----	40	Somewhat limited Slow water movement Slope	0.21 0.01	Somewhat limited Slow water movement Slope	0.21 0.01	Very limited Slope Slow water movement	1.00 0.21
192: Linecreek-----	55	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
193: Lookingglass-----	85	Somewhat limited Dusty Slow water movement Depth to saturated zone	0.50 0.45 0.07	Somewhat limited Dusty Slow water movement Depth to saturated zone	0.50 0.45 0.03	Somewhat limited Slope Dusty Slow water movement Depth to saturated zone	0.88 0.50 0.45 0.07
194: Lookingglass-----	85	Somewhat limited Slope Dusty Slow water movement Depth to saturated zone	0.63 0.50 0.45 0.07	Somewhat limited Slope Dusty Slow water movement Depth to saturated zone	0.63 0.50 0.45 0.03	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.07
195: Lookingglass, stony	85	Somewhat limited Dusty Slow water movement Large stones content Depth to saturated zone Slope	0.50 0.45 0.08 0.07 0.04	Somewhat limited Dusty Slow water movement Large stones content Slope Depth to saturated zone	0.50 0.45 0.08 0.04 0.03	Very limited Slope Dusty Slow water movement Large stones content Depth to saturated zone	1.00 0.50 0.45 0.08 0.07

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
196: Lookingglass, cobbly	60	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.07	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.03	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.07
Lookingglass-----	25	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.07 0.04	Somewhat limited Dusty Slow water movement Slope Depth to saturated zone	0.50 0.45 0.04 0.03	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.07
197: Lookingglass-----	65	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.07 0.04	Somewhat limited Dusty Slow water movement Slope Depth to saturated zone	0.50 0.45 0.04 0.03	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.07
Sopher-----	20	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
198: Lookingglass-----	65	Somewhat limited Dusty Slow water movement Depth to saturated zone Slope	0.50 0.45 0.07 0.04	Somewhat limited Dusty Slow water movement Slope Depth to saturated zone	0.50 0.45 0.04 0.03	Very limited Slope Dusty Slow water movement Depth to saturated zone	1.00 0.50 0.45 0.07
Sopher-----	20	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
199: Lostine-----	85	Not limited		Not limited		Not limited	
200: Mallory-----	35	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.53 0.41 0.06
Gwinly-----	25	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Lawyer-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
201: Mallory-----	35	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.53 0.41 0.06
Gwinly-----	25	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
Lawyer-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
202: Mallory-----	40	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.53 0.41	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.80 0.53 0.41 0.06
Lawyer-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
203: Matheny-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Linville-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Laufer-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.53	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.99 0.53
204: Matterhorn-----	85	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Gravel content Too sandy	0.99 0.01
205: Minam-----	85	Not limited		Not limited		Somewhat limited Slope Gravel content	0.88 0.22
206: Minam-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope Gravel content	1.00 0.22
207: Minam-----	85	Somewhat limited Gravel content	0.32	Somewhat limited Gravel content	0.32	Very limited Gravel content Slope	1.00 0.88

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
208: Minam-----	85	Somewhat limited Slope Gravel content	0.63 0.32	Somewhat limited Slope Gravel content	0.63 0.32	Very limited Slope Gravel content	1.00 1.00
209: Minam-----	90	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
210: Minam-----	90	Not limited		Not limited		Somewhat limited Slope Gravel content	0.88 0.01
211: Minam-----	90	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope Gravel content	1.00 0.01
212: Minam-----	30	Not limited		Not limited		Somewhat limited Slope Gravel content	0.88 0.22
Minam, gravelly----	20	Somewhat limited Gravel content	0.32	Somewhat limited Gravel content	0.32	Very limited Gravel content Slope	1.00 0.88
Endoaquepts-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope Gravel content	1.00 0.88 0.22
213: Minam, gravelly----	30	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope Gravel content	1.00 0.99
Minam, stony-----	25	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope Gravel content	1.00 0.01
Endoaquepts-----	35	Very limited Depth to saturated zone Slope	1.00 0.63	Very limited Depth to saturated zone Slope	1.00 0.63	Very limited Depth to saturated zone Slope Gravel content	1.00 1.00 0.22
214: Mippon-----	90	Very limited Flooding	1.00	Not limited		Not limited	
215: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.35
216: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.35

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
217: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.35
218: Mountemily-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.35
Anatone, cold-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
219: Needhill-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
Parsnip-----	25	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.22	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.22	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
220: Needhill-----	45	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope Gravel content	1.00 0.22
Zumwalt-----	40	Somewhat limited Slow water movement Slope	0.45 0.01	Somewhat limited Slow water movement Slope	0.45 0.01	Very limited Slope Slow water movement Depth to bedrock	1.00 0.45 0.03
221: Olot-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.03
222: Olot-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
223: Olot-----	50	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.03



Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
223: Anatone-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.04	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68  0.01
224: Olot-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
Anatone-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68  0.01
225: Parsnip-----	85	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Slope	1.00 0.88
226: Parsnip-----	55	Very limited Depth to bedrock Gravel content Slope	1.00 0.22 0.01	Very limited Depth to bedrock Gravel content Slope	1.00 0.22 0.01	Very limited Gravel content Slope Depth to bedrock	1.00 1.00 1.00
Bocker-----	30	Very limited Depth to bedrock Large stones content Slope	1.00 0.82  0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.82  0.01	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82  0.56
227: Phys-----	85	Not limited		Not limited		Somewhat limited Slope Gravel content	0.88 0.87
228: Phys-----	40	Somewhat limited Gravel content Slope	0.08 0.04	Somewhat limited Gravel content Slope	0.08 0.04	Very limited Gravel content Slope	1.00 1.00
Doublecreek-----	30	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Collegecreek-----	20	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
229: Phys-----	35	Very limited Slope Gravel content	1.00 0.08	Very limited Slope Gravel content	1.00 0.08	Very limited Slope Gravel content	1.00 1.00
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Collegecreek-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
230: Powwatka-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.90 0.88

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
231: Powwatka-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope Depth to bedrock	1.00 0.90
232: Powwatka-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.90
233: Powwatka-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.90
234: Puzzlecreek-----	85	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Gravel content Large stones content Depth to bedrock	1.00 0.71 0.53 0.01
235: Ramo-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slope  Slow water movement	0.88  0.41
236: Ramo-----	85	Somewhat limited Slope Slow water movement	0.63 0.41	Somewhat limited Slope Slow water movement	0.63 0.41	Very limited Slope Slow water movement	1.00 0.41
237: Ramo-----	85	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
238: Ramo-----	50	Somewhat limited Slow water movement Slope	0.41 0.04	Somewhat limited Slow water movement Slope	0.41 0.04	Very limited Slope  Slow water movement	1.00  0.41
Conley-----	35	Somewhat limited Slow water movement Depth to saturated zone Slope	0.45 0.39 0.04	Somewhat limited Slow water movement Depth to saturated zone Slope	0.45 0.19 0.04	Very limited Slope Slow water movement Depth to saturated zone	1.00 0.45 0.39
239: Reavis-----	85	Not limited		Not limited		Not limited	
240: Redmount-----	85	Not limited		Not limited		Somewhat limited Gravel content	0.22
241: Redmount-----	85	Not limited		Not limited		Very limited Slope Gravel content	1.00 0.22
242: Redmount-----	85	Somewhat limited Gravel content	0.08	Somewhat limited Gravel content	0.08	Very limited Gravel content	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
243: Redmount-----	50	Not limited		Not limited		Somewhat limited Gravel content	0.22
Cheval-----	35	Very limited Flooding Depth to saturated zone	1.00 0.39	Somewhat limited Depth to saturated zone	0.19	Somewhat limited Flooding Depth to saturated zone	0.60 0.39
244: Riverwash-----	80	Not rated		Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Fivebit-----	15	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Gravel content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 1.00
247: Rock outcrop-----	35	Not rated		Not rated		Not rated	
Anatone-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
248: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
Imnaha-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
249: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
249: Cherrycreek-----	20	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 0.20 0.18	Very limited Slope Gravel content Large stones content	1.00 1.00 0.18
250: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Linecreek-----	20	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53
Anatone-----	15	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68 0.01
251: Rock outcrop-----	45	Not rated		Not rated		Not rated	
Rockly-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.56 0.18
Dixiejett-----	20	Very limited Slope Gravel content	1.00 0.38	Very limited Slope Gravel content	1.00 0.38	Very limited Slope Gravel content	1.00 1.00
252: Rockly-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.56 0.18
Rock outcrop-----	30	Not rated		Not rated		Not rated	
Copperfield-----	20	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Gravel content Large stones content	1.00 0.86 0.18
253: Rockly-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.56 0.18
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Lickskillet-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.80 0.68

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
254: Rondowa-----	90	Not limited		Not limited		Somewhat limited Slope	0.88
255: Rondowa-----	90	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
256: Rondowa-----	90	Somewhat limited Slope Large stones content	0.04 0.02	Somewhat limited Slope Large stones content	0.04 0.02	Very limited Slope Large stones content	1.00 0.02
257: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02
258: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02
259: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02
260: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02
261: Rondowa-----	90	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Gravel content	1.00 0.22
262: Rondowa-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
263: Rondowa-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
264: Rondowa-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
265: Rondowa-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.22
266: Rubble land-----	70	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
267: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
268: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
269: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
270: Schrier-----	85	Not limited		Not limited		Somewhat limited Slope	0.88
271: Schrier-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Almota-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.01
272: Schrier-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Almota-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
273: Schuelke-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.20
Schrier-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rockly-----	15	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.18	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.56 0.18
274: Silverlake-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41
275: Slicklog-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
276: Slicklog-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Eastpine-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
277: Slicklog-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Eastpine-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
278: Slicklog-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Wintercanyon-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
279: Snell-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.90 0.88
280: Snell-----	65	Somewhat limited Large stones content Slope	0.32 0.04	Somewhat limited Large stones content Slope	0.32 0.04	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.32
Harlow-----	25	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
281: Snell-----	60	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.32
Harlow-----	25	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
282: Snell-----	50	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.32
Harlow-----	40	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
283: Snell-----	55	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.32

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
283: Harlow-----	30	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	 1.00 1.00 0.53  0.41  0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	 1.00 1.00 0.53  0.41  0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	 1.00 1.00 1.00 0.53  0.41
284: Snell-----	65	Somewhat limited Slope	 0.01	Somewhat limited Slope	 0.01	Very limited Slope Depth to bedrock	 1.00 0.90
Harlow-----	25	Very limited Depth to bedrock Slow water movement Slope	 1.00 0.41  0.01	Very limited Depth to bedrock Slow water movement Slope	 1.00 0.41  0.01	Very limited Slope Depth to bedrock Slow water movement	 1.00 1.00 0.41
285: Snell-----	35	Very limited Slope Large stones content	 1.00 0.53	Very limited Slope Large stones content	 1.00 0.53	Very limited Slope Depth to bedrock Large stones content	 1.00 0.90 0.53
Harlow-----	25	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	 1.00 1.00 0.53  0.41  0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	 1.00 1.00 0.53  0.41  0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	 1.00 1.00 1.00 0.53  0.41
Imnaha-----	25	Very limited Slope	 1.00	Very limited Slope	 1.00	Very limited Slope Depth to bedrock Gravel content	 1.00 0.90 0.11
286: Snell-----	35	Very limited Slope Large stones content	 1.00 0.53	Very limited Slope Large stones content	 1.00 0.53	Very limited Slope Depth to bedrock Large stones content	 1.00 0.90 0.53
Harlow-----	25	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	 1.00 1.00 0.53  0.41  0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	 1.00 1.00 0.53  0.41  0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	 1.00 1.00 1.00 0.53  0.41
Imnaha-----	25	Very limited Slope	 1.00	Very limited Slope	 1.00	Very limited Slope Depth to bedrock Gravel content	 1.00 0.90 0.11
287: Snell-----	40	Very limited Slope Large stones content	 1.00 0.32	Very limited Slope Large stones content	 1.00 0.32	Very limited Slope Depth to bedrock  Large stones content	 1.00 0.90  0.32



Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
287: Harlow-----	30	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
Rock outcrop-----	15	Not rated		Not rated		Not rated	
288: Snell-----	35	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.53
Imnaha-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.11
Rock outcrop-----	25	Not rated		Not rated		Not rated	
289: Snow-----	85	Not limited		Not limited		Not limited	
290: Sopher-----	85	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
291: Sopher-----	85	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
292: Sopher-----	60	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
Gwinly-----	25	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
293: Sopher-----	50	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
Gwinly-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
294: Sopher-----	50	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39	Very limited Slope Slow water movement	1.00 0.39
Gwinly-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.32	Very limited Slope Depth to bedrock Slow water movement Large stones content Gravel content	1.00 1.00 0.41 0.32 0.12
295: Sturgill-----	85	Very limited Depth to saturated zone Flooding Slow water movement	1.00 1.00 0.21	Very limited Depth to saturated zone Slow water movement	1.00 0.21	Very limited Depth to saturated zone Flooding Slow water movement	1.00 0.60 0.21
296: Sturgill-----	45	Very limited Depth to saturated zone Flooding Slow water movement	1.00 1.00 0.21	Very limited Depth to saturated zone Slow water movement	1.00 0.21	Very limited Depth to saturated zone Flooding Slow water movement	1.00 0.60 0.21
Eggleson-----	40	Very limited Flooding Gravel content	1.00 0.08	Somewhat limited Gravel content	0.08	Very limited Gravel content	1.00
297: Sweitberg-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slope Slow water movement Depth to bedrock	0.88 0.41 0.10
298: Sweitberg-----	85	Somewhat limited Slope Slow water movement	0.63 0.41	Somewhat limited Slope Slow water movement	0.63 0.41	Very limited Slope Slow water movement Depth to bedrock	1.00 0.41 0.10
299: Sweiting-----	85	Somewhat limited Slow water movement Slope	0.41 0.04	Somewhat limited Slow water movement Slope	0.41 0.04	Very limited Slope Slow water movement Depth to bedrock	1.00 0.41 0.20
300: Sweiting-----	85	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement Depth to bedrock	1.00 0.41 0.20
301: Sweiting-----	50	Somewhat limited Slow water movement Slope	0.41 0.04	Somewhat limited Slow water movement Slope	0.41 0.04	Very limited Slope Slow water movement Depth to bedrock	1.00 0.41 0.20

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
301: Harlow-----	40	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53  0.41  0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53  0.41  0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53  0.41
302: Sweiting-----	50	Very limited Slope Slow water movement	1.00  0.41	Very limited Slope Slow water movement	1.00  0.41	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.41 0.20
Harlow-----	35	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53  0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53  0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53  0.41
303: Sweiting-----	50	Very limited Slope Slow water movement	1.00  0.41	Very limited Slope Slow water movement	1.00  0.41	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.41 0.20
Klicker-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.84
304: Syrupcreek-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope Depth to bedrock	1.00 0.54
305: Syrupcreek-----	60	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope Depth to bedrock	1.00 0.54
Anatone-----	25	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.68  0.01	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.68  0.01
306: Syrupcreek-----	60	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.54
Lowerbluff-----	25	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Slope Depth to bedrock	1.00 1.00
307: Syrupcreek-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.54

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
307: Tamara-----	30	Very limited Slope Slow water movement	1.00 0.21	Very limited Slope Slow water movement	1.00 0.21	Very limited Slope Slow water movement	1.00 0.21
308: Syrupcreek-----	65	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.54
Tamara-----	20	Very limited Slope Slow water movement	1.00 0.21	Very limited Slope Slow water movement	1.00 0.21	Very limited Slope Slow water movement	1.00 0.21
309: Tamara-----	65	Somewhat limited Slow water movement Slope	0.21 0.01	Somewhat limited Slow water movement Slope	0.21 0.01	Very limited Slope Slow water movement	1.00 0.21
Sherod-----	20	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 0.41	Very limited Depth to bedrock Depth to saturated zone Slow water movement	1.00 0.94 0.41	Very limited Depth to saturated zone Depth to bedrock Slow water movement	1.00 1.00 0.41
310: Tamara-----	45	Somewhat limited Slow water movement Slope	0.21 0.01	Somewhat limited Slow water movement Slope	0.21 0.01	Very limited Slope Slow water movement	1.00 0.21
Syrupcreek-----	40	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope Depth to bedrock	1.00 0.54
311: Tamarackcanyon-----	40	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Linecreek-----	25	Very limited Slope Gravel content Large stones content	1.00 0.75 0.32	Very limited Slope Gravel content Large stones content	1.00 0.75 0.32	Very limited Slope Gravel content Large stones content	1.00 1.00 0.32
Harlow-----	20	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
312: Tamarackcanyon-----	65	Somewhat limited Slow water movement Slope	0.41 0.04	Somewhat limited Slow water movement Slope	0.41 0.04	Very limited Slope Slow water movement	1.00 0.41
Lowerbluff-----	20	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Slope Depth to bedrock	1.00 1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
313: Tamarackcanyon-----	40	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Olot-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
Harlow-----	20	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
314: Tamarackcanyon-----	40	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Olot-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
Harlow-----	20	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
315: Tannahill-----	35	Very limited Slope Gravel content	1.00 0.01	Very limited Slope Gravel content	1.00 0.01	Very limited Slope Gravel content	1.00 1.00
Schrier-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope Gravel content	1.00 0.01	Very limited Slope Gravel content	1.00 0.01	Very limited Slope Gravel content	1.00 1.00
Schuelke-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.20
Licksillet-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock Gravel content Large stones content	1.00 1.00 0.80 0.68

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
317: Thiessen-----	85	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39 0.03 0.02	Very limited Slope Slow water movement Gravel content Large stones content	1.00 0.39 0.03 0.02	Very limited Slope Gravel content Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.39 0.16 0.02
318: Threebuck-----	70	Somewhat limited Slow water movement Slope	0.41 0.04	Somewhat limited Slow water movement Slope	0.41 0.04	Very limited Slope Slow water movement	1.00 0.41
Harlow-----	15	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53 0.41 0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
319: Threebuck-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Linecreek-----	30	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53
Harlow-----	20	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
320: Threebuck-----	50	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Tamarackcanyon-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
321: Threebuck-----	50	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Tamarackcanyon-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
322: Threebuck-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Tamarackcanyon-----	30	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Harlow-----	20	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Large stones content Slow water movement Gravel content	1.00 1.00 0.53 0.41 0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53 0.41
323: Threebuck-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Tamarackcanyon-----	30	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Linecreek-----	20	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 0.75 0.53	Very limited Slope Gravel content Large stones content	1.00 1.00 0.53
324: Tippett-----	70	Somewhat limited Slow water movement	0.45	Somewhat limited Slow water movement	0.45	Somewhat limited Slow water movement	0.45
Harlow-----	20	Very limited Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.53 0.41 0.01	Very limited Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.53 0.41 0.01	Very limited Gravel content Depth to bedrock Large stones content Slow water movement	1.00 1.00 0.53 0.41
325: Tippett-----	70	Somewhat limited Slow water movement	0.45	Somewhat limited Slow water movement	0.45	Somewhat limited Slow water movement	0.45
Zumwalt-----	20	Somewhat limited Slow water movement	0.45	Somewhat limited Slow water movement	0.45	Somewhat limited Slow water movement	0.45
326: Tolo-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
327: Tolo-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
328: Tolo, fan-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
329: Tolo-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
330: Tolo-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
331: Tolo-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
332: Tolo-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
333: Tolo-----	50	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Olot-----	35	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.03
334: Tolo-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Olot-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.03
335: Topper-----	85	Not limited		Not limited		Somewhat limited Slope	0.88
336: Topper-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
337: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
338: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
339: Troutmeadows-----	65	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.35
Crawfish-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.32 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.32 0.04	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.32 0.12



Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
340: Tuckerdowns-----	85	Somewhat limited Gravel content	0.08	Somewhat limited Gravel content	0.08	Very limited Gravel content Slope	1.00 0.88
341: Tuckerdowns-----	85	Somewhat limited Slope Gravel content	0.63 0.08	Somewhat limited Slope Gravel content	0.63 0.08	Very limited Gravel content Slope	1.00 1.00
342: Tuckerdowns-----	85	Very limited Slope Gravel content	1.00 0.08	Very limited Slope Gravel content	1.00 0.08	Very limited Gravel content Slope	1.00 1.00
343: Vandamine-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.05
344: Vandamine-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.05
Rock outcrop-----	10	Not rated		Not rated		Not rated	
345: Veazie-----	85	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
346: Voats-----	50	Very limited Flooding Too sandy	1.00 0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding Too sandy	0.60 0.01
Veazie-----	35	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
347: Volstead-----	35	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
Quirk-----	30	Somewhat limited Slow water movement Slope	0.41 0.01	Somewhat limited Slow water movement Slope	0.41 0.01	Very limited Slope Slow water movement Depth to bedrock	1.00 0.41 0.01
Bocker-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.82 0.01	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.82 0.56
348: Volstead-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Quirk-----	30	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement Depth to bedrock	1.00 0.41 0.01

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
348: Bocker-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 0.82 0.56
349: Wallowa-----	50	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock Gravel content	1.00 0.54 0.22
Bocker-----	40	Very limited Depth to bedrock Large stones content	1.00 0.82	Very limited Depth to bedrock Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 0.88 0.82 0.56
350: Watama-----	85	Not limited		Not limited		Somewhat limited Slope Depth to bedrock Gravel content	0.88 0.84 0.22
351: Watama-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope Depth to bedrock Gravel content	1.00 0.84 0.22
352: Watama-----	50	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock Gravel content	1.00 0.84 0.22
Rockly-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.18 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.18 0.04	Very limited Depth to bedrock Slope Gravel content Large stones content	1.00 1.00 0.56 0.18
353: Water-----	95	Not rated		Not rated		Not rated	
354: Wilkins-----	85	Very limited Depth to saturated zone Flooding Dusty Slow water movement	1.00 1.00 0.50 0.45	Somewhat limited Depth to saturated zone Dusty Slow water movement	0.94 0.50 0.45	Very limited Depth to saturated zone Flooding Dusty Slow water movement Slope	1.00 0.60 0.50 0.45 0.12
355: Wilkins-----	55	Very limited Depth to saturated zone Flooding Dusty Slow water movement	1.00 1.00 0.50 0.45	Somewhat limited Depth to saturated zone Dusty Slow water movement	0.94 0.50 0.45	Very limited Depth to saturated zone Flooding Dusty Slow water movement	1.00 0.60 0.50 0.45

Table 11a.--Recreation (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
355: Feaginranch-----	30	Very limited Depth to saturated zone Flooding Ponding  Slow water movement	1.00  1.00 1.00  0.96	Very limited Depth to saturated zone Ponding Slow water movement	1.00  1.00 0.96	Very limited Depth to saturated zone Ponding Slow water movement Flooding	1.00  1.00 0.96  0.60
356: Wolot-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
357: Zumwalt-----	65	Somewhat limited Slow water movement	0.45	Somewhat limited Slow water movement	0.45	Somewhat limited Slope Slow water movement Depth to bedrock	0.88 0.45  0.03
Harlow-----	25	Very limited Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.53  0.41  0.01	Very limited Depth to bedrock Large stones content Slow water movement Gravel content	1.00 0.53  0.41  0.01	Very limited Gravel content Depth to bedrock Slope Large stones content Slow water movement	1.00 1.00 0.88 0.53  0.41
358: Zumwalt-----	65	Somewhat limited Slope Slow water movement	0.63 0.45	Somewhat limited Slope Slow water movement	0.63 0.45	Very limited Slope Slow water movement Depth to bedrock	1.00 0.45  0.03
Harlow-----	25	Very limited Depth to bedrock Slope Large stones content Slow water movement Gravel content	1.00 0.63 0.53  0.41  0.01	Very limited Depth to bedrock Slope Large stones content Slow water movement Gravel content	1.00 0.63 0.53  0.41  0.01	Very limited Slope Depth to bedrock Gravel content Large stones content Slow water movement	1.00 1.00 1.00 0.53  0.41
359: Zumwalt-----	65	Somewhat limited Slow water movement Slope	0.45  0.04	Somewhat limited Slow water movement Slope	0.45  0.04	Very limited Slope Slow water movement Depth to bedrock	1.00 0.45  0.03
Harlow-----	20	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53  0.41  0.04 0.01	Very limited Depth to bedrock Large stones content Slow water movement Slope Gravel content	1.00 0.53  0.41  0.04 0.01	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.53  0.41

Table 11b.--Recreation (Part II)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Not limited		Not limited		Not limited	
2: Akerite-----	85	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.63
3: Albee-----	45	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope Depth to bedrock	0.04 0.01
Anatone-----	40	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.04
4: Albee-----	50	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope Depth to bedrock	0.04 0.01
Bocker-----	40	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
5: Analulu-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock	1.00 0.94 0.29
Slicklog-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bluecanyon-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	1.00 1.00 1.00 0.96 0.32
6: Analulu-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock	1.00 0.94 0.29
Slicklog-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7: Anatone-----	50	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.04
Bocker-----	35	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
8: Anatone-----	50	Somewhat limited Slope Large stones content	0.92 0.68	Somewhat limited Large stones content	0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Bocker-----	35	Somewhat limited Slope Large stones content	0.92 0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
9: Anatone-----	50	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Bocker-----	35	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
10: Anatone-----	35	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.01
Bocker-----	30	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
Fivebit-----	20	Not limited		Not limited		Very limited Droughty Depth to bedrock Gravel content Slope	1.00 1.00 1.00 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11: Anatone-----	40	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Bocker-----	25	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Fivebit-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 1.00
12: Anatone-----	35	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Cherrycreek-----	30	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
13: Anatone-----	40	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
14: Anatone-----	45	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Kamela-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.94 0.13

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15: Anatone-----	50	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Klicker-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
Rock outcrop-----	10	Not rated		Not rated		Not rated	
16: Anatone-----	50	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Linecreek-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Rock outcrop-----	10	Not rated		Not rated		Not rated	
17: Anatone-----	50	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Olot-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.03
18: Anatone-----	45	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Clearline-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
19: Anatone-----	40	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19: Fivebit-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 1.00
20: Anatone-----	40	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
21: Balm-----	50	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.75
Catherine-----	40	Somewhat limited Depth to saturated zone	0.08	Somewhat limited Depth to saturated zone	0.08	Somewhat limited Flooding Depth to saturated zone	0.60 0.43
22: Bittercreek-----	65	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	0.99
Mippon-----	20	Not limited		Not limited		Somewhat limited Droughty	0.24
23: Bocker-----	85	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty	1.00 1.00 1.00
24: Bocker-----	60	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
Anatone-----	15	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	



Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25: Bocker-----	60	Somewhat limited Slope Large stones content	0.92 0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Anatone-----	15	Somewhat limited Slope Large stones content	0.92 0.68	Somewhat limited Large stones content	0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
26: Bocker-----	50	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Clearline-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
Rock outcrop-----	20	Not rated		Not rated		Not rated	
27: Bocker-----	40	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Imnaha-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	15	Not rated		Not rated		Not rated	
28: Bridgewater-----	90	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Large stones content Droughty Flooding Slope	1.00 0.96 0.60 0.01
29: Btree-----	45	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Flycreek-----	40	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30: Btree-----	45	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Flycreek-----	40	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.01
31: Btree-----	30	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Flycreek-----	30	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.01
Anatone-----	30	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
32: Btree-----	30	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
Flycreek-----	30	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.01
Anatone-----	30	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
33: Btree-----	40	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
Klicker-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
Anatone-----	20	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
34: Bucketlake-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
35: Bucketlake-----	85	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36: Buford-----	45	Not limited		Not limited		Somewhat limited Slope	0.04
Anatone-----	40	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.04
37: Buford-----	45	Not limited		Not limited		Somewhat limited Slope	0.04
Bocker-----	40	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
38: Bunchpoint-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.20 0.01
39: Bunchpoint-----	45	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.20 0.01
Bocker-----	40	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
40: Chard-----	90	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
41: Cherrycreek-----	50	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18	Very limited Large stones content Gravel content Slope	1.00 0.20 0.04
Imnaha-----	35	Not limited		Not limited		Somewhat limited Depth to bedrock Large stones content Slope	0.90 0.08 0.04
42: Cherrycreek-----	50	Somewhat limited Slope Large stones content	0.92 0.18	Somewhat limited Large stones content	0.18	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Imnaha-----	20	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Imnaha, moist-----	15	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
43: Cherrycreek-----	40	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Limberjim-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
45: Chesnimnus-----	85	Not limited		Not limited		Not limited	
46: Chesnimnus-----	85	Not limited		Not limited		Not limited	
47: Cheval-----	85	Not limited		Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.19
48: Cloverland-----	90	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.03
49: Cloverland-----	90	Not limited		Not limited		Somewhat limited Slope Depth to saturated zone	0.63 0.03
50: Conley-----	90	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.19
51: Conley-----	90	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.19

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
52: Copperfield-----	50	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 1.00
Thiessen-----	35	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
53: Copperfield-----	40	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 1.00
Thiessen-----	30	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
Rock outcrop-----	15	Not rated		Not rated		Not rated	
54: Cowsly-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to saturated zone	0.19
55: Cowsly-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Depth to saturated zone	0.63 0.19
56: Cowsly-----	85	Somewhat limited Dusty Large stones content	0.50 0.02	Somewhat limited Dusty Large stones content	0.50 0.02	Very limited Large stones content Depth to saturated zone Slope	0.99 0.19 0.04
57: Cowsly, cobbly-----	60	Somewhat limited Slope Dusty	0.92 0.50	Somewhat limited Dusty	0.50	Very limited Slope Large stones content Depth to saturated zone	1.00 0.32 0.19
Cowsly-----	25	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to saturated zone Slope	0.19 0.04
58: Cowsly, cobbly-----	60	Somewhat limited Slope Dusty	0.92 0.50	Somewhat limited Dusty	0.50	Very limited Slope Large stones content Depth to saturated zone	1.00 0.32 0.19

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58: Cowsly-----	25	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to saturated zone Slope	0.19 0.04
59: Cowsly-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to saturated zone Slope	0.19 0.04
Howmeadows-----	15	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to bedrock Droughty	1.00 0.80 0.03
Sherod-----	15	Somewhat limited Depth to saturated zone	0.86	Somewhat limited Depth to saturated zone	0.86	Very limited Depth to bedrock Depth to saturated zone Droughty	1.00 0.94 0.39
60: Demasters-----	50	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Snell-----	35	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.97 0.90 0.57
61: Dixiejett-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content Droughty Large stones content	1.00 0.38 0.32 0.08
Lickskillet-----	30	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Rockly-----	20	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
62: Doublecreek-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Flybow-----	30	Very limited Slope Gravel content Dusty	1.00 1.00 0.50	Very limited Slope Gravel content Dusty	1.00 1.00 0.50	Very limited Depth to bedrock Slope Gravel content Droughty Large stones content	1.00 1.00 1.00 1.00 0.08

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
62: Rock outcrop-----	15	Not rated		Not rated		Not rated	
63: Doublecreek-----	55	Not limited		Not limited		Somewhat limited Slope	0.04
Langrell-----	30	Not limited		Not limited		Somewhat limited Gravel content Droughty	0.25 0.01
64: Doublecreek-----	45	Not limited		Not limited		Somewhat limited Slope	0.04
Phys-----	40	Not limited		Not limited		Somewhat limited Slope	0.04
65: Downards-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	20	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
66: Downards-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Emily-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Sopher-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
67: Downards-----	60	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Klicker-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
68: Downards-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Klicker-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
69: Downeygulch-----	50	Not limited		Not limited		Somewhat limited Depth to bedrock Gravel content Slope	0.90 0.08 0.01
Lowerbluff-----	35	Not limited		Not limited		Very limited Depth to bedrock Slope	1.00 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70: Downeygulch-----	55	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.08
Thirstygulch-----	30	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Depth to bedrock Droughty	1.00 0.99 0.96
71: Eggleson-----	85	Not limited		Not limited		Somewhat limited Droughty Gravel content	0.97 0.08
72: Emily-----	55	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Wolot-----	30	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
73: Endoaquolls, mesic--	85	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone	0.99
74: Ferguson-----	85	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.04
75: Ferguson-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
76: Ferguson-----	85	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
77: Ferguson-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
78: Ferguson-----	85	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
79: Flybow-----	40	Very limited Slope Gravel content Dusty	1.00 1.00 0.50	Very limited Slope Gravel content Dusty	1.00 1.00 0.50	Very limited Depth to bedrock Slope Gravel content Droughty Large stones content	1.00 1.00 1.00 1.00 0.08
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	



Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
80: Flybow-----	40	Very limited Slope Gravel content Dusty	1.00 1.00 0.50	Very limited Slope Gravel content Dusty	1.00 1.00 0.50	Very limited Depth to bedrock Slope Gravel content Droughty Large stones content	1.00 1.00 1.00 1.00 0.08
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
81: Flycreek-----	65	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope Depth to bedrock	0.04 0.01
Flyvalley-----	20	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Very limited Depth to bedrock Slope	1.00 0.04
82: Freels-----	85	Not limited		Not limited		Not limited	
83: Geisercreek-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
84: Gelsinger-----	85	Not limited		Not limited		Not limited	
85: Gelsinger-----	85	Not limited		Not limited		Somewhat limited Slope	0.63
86: Getaway-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
87: Getaway-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
88: Getaway-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	30	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
89: Getaway-----	50	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Harlow-----	35	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
90: Getaway-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Harlow-----	35	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
91: Getaway-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Harlow-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
92: Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Linecreek-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Anatone-----	20	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
93: Getaway-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Snell-----	35	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.97 0.90 0.57
94: Gwin-----	55	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 0.92 0.08
Kettenbach-----	20	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
94: Rock outcrop-----	10	Not rated		Not rated		Not rated	
95: Gwin-----	55	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 0.92 0.08
Kettenbach-----	20	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
Rock outcrop-----	10	Not rated		Not rated		Not rated	
96: Gwin-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 0.92 0.08
Klickson-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Kettenbach-----	20	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
97: Gwinly-----	40	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Kettenbach-----	35	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
Rock outcrop-----	10	Not rated		Not rated		Not rated	
98: Gwinly-----	40	Somewhat limited Large stones content Slope	0.32 0.08	Somewhat limited Large stones content	0.32	Very limited Large stones content Depth to bedrock Droughty Slope	1.00 1.00 1.00 1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
98: Mallory-----	35	Somewhat limited Large stones content Slope	0.50 0.08	Somewhat limited Large stones content	0.50	Very limited Large stones content Slope Depth to bedrock Droughty	1.00 1.00 0.80 0.78
99: Gwinly-----	40	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Mallory-----	35	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
100: Gwinly-----	35	Somewhat limited Slope Large stones content	0.92 0.32	Somewhat limited Large stones content	0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Mallory-----	25	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Kettenbach-----	25	Somewhat limited Slope Large stones content	0.92 0.42	Somewhat limited Large stones content	0.42	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
101: Gwinly-----	35	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Kettenbach-----	25	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
102: Gwinly-----	35	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Kettenbach-----	25	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content	1.00 0.42	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
103: Gwinly-----	35	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Rock outcrop-----	25	Not rated		Not rated		Not rated	
104: Gwinly-----	50	Somewhat limited Large stones content	0.32	Somewhat limited Large stones content	0.32	Very limited Large stones content Depth to bedrock Droughty Slope	1.00 1.00 1.00 0.04
Rockly-----	35	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18	Very limited Depth to bedrock  Droughty Large stones content Slope	1.00  1.00 1.00 0.04
105: Gwinly-----	40	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Rockly-----	25	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
106: Gwinly-----	60	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Sopher-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
107: Gwinly-----	55	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Sopher-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
108: Hapludolls, frigid--	35	Not limited		Not limited		Somewhat limited Large stones content	0.01
Endoaquolls, frigid	30	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
Endoaquents, frigid	20	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding Gravel content Large stones content	1.00 0.60 0.38 0.08
109: Harl-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	30	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
110: Harl-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	30	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
111: Harl-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Getaway-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
112: Harl-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Limberjim-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
113: Harlow-----	60	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
Bocker-----	25	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
114: Harlow-----	60	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Bocker-----	25	Somewhat limited Slope Large stones content	0.92 0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
115: Harlow-----	45	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Bocker-----	40	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
116: Harlow-----	50	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
Bocker-----	35	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
117: Harlow-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Bocker-----	30	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
118: Harlow-----	40	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
Imnaha-----	35	Not limited		Not limited		Somewhat limited Depth to bedrock Large stones content Slope	0.90 0.08 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	
119: Harlow-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	



Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120: Harlow-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
121: Harlow-----	50	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
122: Harlow-----	50	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
123: Harlow-----	35	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
Snell-----	25	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Large stones content Depth to bedrock Droughty Slope	1.00 0.90 0.57 0.04
Imnaha-----	25	Not limited		Not limited		Somewhat limited Depth to bedrock Large stones content Slope	0.90 0.08 0.04

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
124: Harlow-----	35	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Snell-----	25	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Imnaha-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
125: Harlow-----	35	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Snell-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Imnaha-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
126: Harlow-----	35	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Snell-----	25	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Large stones content	1.00 0.50	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
127: Harlow-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Tamarackcanyon-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Linecreek-----	20	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
128: Harlow-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Tamarackcanyon-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Olot-----	20	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.03
129: Harlow-----	50	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Threebuck-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
130: Hershal-----	85	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone Flooding	0.99 0.60
131: Hershal-----	50	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone Flooding	0.99 0.60
Voats-----	35	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding Droughty	0.60 0.22
132: Hershal-----	35	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone Flooding	0.99 0.60

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132: Voats-----	30	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding Droughty	0.60 0.22
Veazie-----	20	Not limited		Not limited		Somewhat limited Flooding	0.60
133: Howmeadows-----	50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to bedrock Droughty	1.00 0.80 0.03
Wilkins-----	35	Somewhat limited Depth to saturated zone Dusty	0.86 0.50	Somewhat limited Depth to saturated zone Dusty	0.86 0.50	Somewhat limited Depth to saturated zone	0.94
134: Hurwal-----	90	Not limited		Not limited		Not limited	
135: Hurwal-----	90	Not limited		Not limited		Somewhat limited Slope	0.63
136: Hurwal, deep-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
137: Hurwal, deep-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
138: Hurwal-----	90	Not limited		Not limited		Not limited	
139: Hurwal-----	90	Not limited		Not limited		Somewhat limited Slope	0.63
140: Hurwal-----	90	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
141: Imnaha-----	55	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Anatone-----	35	Somewhat limited Slope Large stones content	0.92 0.68	Somewhat limited Large stones content	0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
142: Imnaha-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
142: Imhaha, moist-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Anatone-----	20	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
143: Imnaha-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Bocker-----	25	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Clearline-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
144: Imnaha-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Cherrycreek-----	30	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Anatone-----	15	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
145: Imnaha-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Clearline-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
146: Imnaha-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Cherrycreek-----	20	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
147: Josset-----	85	Not limited		Not limited		Somewhat limited Flooding	0.60
148: Kahler-----	50	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Anatone-----	35	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
149: Kahler-----	40	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
Anatone-----	35	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
150: Kahler-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Linecreek-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Getaway-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
151: Kahler-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
Linecreek-----	35	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
151: Getaway-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
152: Klicker-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Droughty Slope	0.84 0.09 0.04
153: Klicker-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
154: Klicker-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
155: Klicker-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
156: Klicker-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
157: Klicker-----	50	Not limited		Not limited		Somewhat limited Depth to bedrock Droughty Slope	0.84 0.09 0.04
Anatone-----	35	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.04
158: Klicker-----	50	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
Anatone-----	35	Somewhat limited Slope Large stones content	0.92 0.68	Somewhat limited Large stones content	0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
159: Klicker-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
159: Anatone-----	35	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
160: Klicker-----	35	Not limited		Not limited		Somewhat limited Depth to bedrock Droughty Slope	0.84 0.09 0.01
Fivebit-----	30	Not limited		Not limited		Very limited Droughty Depth to bedrock Gravel content Slope	1.00 1.00 1.00 0.01
Anatone-----	20	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.01
161: Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
Fivebit-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 1.00
Anatone-----	20	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
162: Klicker-----	50	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
Harlow-----	35	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
163: Klicker-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
Kamela-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.94 0.13



Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
163: Fivebit-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 1.00
164: Klicker-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.38
Olot-----	30	Very limited Slope	1.00	Very limited Water erosion	1.00	Very limited Slope	1.00
		Water erosion	1.00	Slope	1.00	Depth to bedrock	0.03
165: Klicker-----	35	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.06
Thirstygulch-----	30	Somewhat limited Slope	0.92	Somewhat limited Large stones	0.53	Very limited Slope	1.00
		Large stones content	0.53	content		Depth to bedrock Droughty	0.99 0.96
Anatone-----	20	Somewhat limited Slope	0.92	Somewhat limited Large stones	0.68	Very limited Slope	1.00
		Large stones content	0.68	content		Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
166: Klicker-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.06
Thirstygulch-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	0.53	Large stones content	0.53	Depth to bedrock Droughty	0.99 0.96
Anatone-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	0.68	Large stones content	0.68	Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
167: Klicker-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	0.68	Large stones content	0.68	Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
168: Klickson-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	25	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Larabee-----	25	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
169: Klickson-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	25	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Larabee-----	25	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
170: Klickson-----	60	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Larabee-----	25	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
171: Klickson-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Larabee-----	30	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Volstead-----	20	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
172: Langrell-----	85	Not limited		Not limited		Somewhat limited Gravel content Droughty	0.25 0.01
173: Langrell-----	50	Not limited		Not limited		Somewhat limited Gravel content Droughty	0.25 0.01
Snow-----	35	Not limited		Not limited		Not limited	
174: Larabee-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Getaway-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
174: Klickson-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
175: Larabee-----	35	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Klickson-----	30	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Volstead-----	20	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
176: Larabee-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Klickson-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Volstead-----	20	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
177: Larabee-----	45	Not limited		Not limited		Somewhat limited Slope	0.01
Melhorn-----	40	Not limited		Not limited		Somewhat limited Slope	0.01
178: Larabee-----	45	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Volstead-----	40	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
179: Laufer-----	50	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.04
Thiessen-----	35	Somewhat limited Large stones content	0.02	Somewhat limited Large stones content	0.02	Very limited Large stones content Droughty Depth to bedrock Slope Gravel content	0.99 0.58 0.16 0.04 0.03
180: Laufer-----	50	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
180: Thiessen-----	35	Somewhat limited Slope Large stones content	0.92 0.02	Somewhat limited Large stones content	0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
181: Laufer-----	45	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Thiessen-----	40	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
182: Laufer-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Thiessen-----	30	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
Rock outcrop-----	15	Not rated		Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content	1.00 0.08
Lawyer-----	25	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
Gwinly-----	25	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
184: Lickskillet-----	40	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
184: Dixiejett-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content Droughty Large stones content	1.00 0.38 0.32 0.08
Rock outcrop-----	20	Not rated		Not rated		Not rated	
185: Lickskillet-----	40	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Depth to bedrock Droughty Slope	1.00 1.00 1.00 0.04
Doublecreek-----	25	Not limited		Not limited		Somewhat limited Slope	0.04
Rockly-----	20	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18	Very limited Depth to bedrock Droughty Large stones content Slope	1.00 1.00 1.00 0.04
186: Lickskillet-----	30	Somewhat limited Slope Large stones content	0.92 0.68	Somewhat limited Large stones content	0.68	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Doublecreek-----	30	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Rockly-----	25	Somewhat limited Slope Large stones content	0.92 0.18	Somewhat limited Large stones content	0.18	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
187: Limberjim-----	85	Not limited		Not limited		Somewhat limited Slope	0.04
188: Limberjim-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Anatone-----	35	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
189: Limberjim-----	60	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Syrupcreek-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock	1.00 0.54

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
190: Limberjim-----	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Syrupcreek-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.54
191: Limberjim-----	45	Not limited		Not limited		Somewhat limited Slope	0.01
Tamara-----	40	Not limited		Not limited		Somewhat limited Slope	0.01
192: Linecreek-----	55	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
193: Lookingglass-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to saturated zone	0.03
194: Lookingglass-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Depth to saturated zone	0.63 0.03
195: Lookingglass, stony	85	Somewhat limited Dusty Large stones content	0.50 0.08	Somewhat limited Dusty Large stones content	0.50 0.08	Very limited Large stones content Slope Depth to saturated zone	1.00 0.04 0.03
196: Lookingglass, cobbly	60	Somewhat limited Slope Dusty	0.92 0.50	Somewhat limited Dusty	0.50	Very limited Slope Large stones content Depth to saturated zone	1.00 0.68 0.03
Lookingglass-----	25	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Depth to saturated zone	0.04 0.03
197: Lookingglass-----	65	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Depth to saturated zone	0.04 0.03
Sopher-----	20	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
198: Lookingglass-----	65	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Depth to saturated zone	0.04 0.03
Sopher-----	20	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
199: Lostine-----	85	Not limited		Not limited		Not limited	
200: Mallory-----	35	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Gwinly-----	25	Somewhat limited Slope Large stones content	0.92 0.32	Somewhat limited Large stones content	0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Lawyer-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope Large stones content	1.00 0.08
201: Mallory-----	35	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Gwinly-----	25	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
Lawyer-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content	1.00 0.08
202: Mallory-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Lawyer-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content	1.00 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
203: Matheny-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
Linville-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Laufer-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
204: Matterhorn-----	85	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Droughty Large stones content	0.99 0.01
205: Minam-----	85	Not limited		Not limited		Not limited	
206: Minam-----	85	Not limited		Not limited		Somewhat limited Slope	0.63
207: Minam-----	85	Not limited		Not limited		Somewhat limited Gravel content	0.32
208: Minam-----	85	Not limited		Not limited		Somewhat limited Slope Gravel content	0.63 0.32
209: Minam-----	90	Not limited		Not limited		Somewhat limited Large stones content Slope	0.92 0.04
210: Minam-----	90	Not limited		Not limited		Somewhat limited Large stones content	0.92
211: Minam-----	90	Not limited		Not limited		Somewhat limited Large stones content Slope	0.92 0.63
212: Minam-----	30	Not limited		Not limited		Not limited	
Minam, gravelly----	20	Not limited		Not limited		Somewhat limited Gravel content	0.32
Endoaquepts-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
213: Minam, gravelly----	30	Not limited		Not limited		Somewhat limited Slope Large stones content	0.63 0.01



Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
213: Minam, stony-----	25	Not limited		Not limited		Somewhat limited Large stones content Slope	0.92 0.63
Endoaquepts-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope	1.00 0.63
214: Mippon-----	90	Not limited		Not limited		Somewhat limited Droughty	0.24
215: Mountemily-----	45	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Troutmeadows-----	40	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock	1.00 0.35
216: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.35
217: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.35
218: Mountemily-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.35
Anatone, cold-----	25	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
219: Needhill-----	35	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Parsnip-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Gravel content Droughty Large stones content	1.00 1.00 0.22 0.08 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
219: Bocker-----	25	Somewhat limited Slope Large stones content	0.92 0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
220: Needhill-----	45	Not limited		Not limited		Somewhat limited Slope	0.01
Zumwalt-----	40	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.03 0.01
221: Olot-----	85	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope Depth to bedrock	0.04 0.03
222: Olot-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.03
223: Olot-----	50	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope Depth to bedrock	0.04 0.03
Anatone-----	35	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.04
224: Olot-----	50	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.03
Anatone-----	35	Somewhat limited Slope Large stones content	0.92 0.68	Somewhat limited Large stones content	0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
225: Parsnip-----	85	Not limited		Not limited		Very limited Depth to bedrock Droughty	1.00 0.08
226: Parsnip-----	55	Not limited		Not limited		Very limited Depth to bedrock Gravel content Droughty Large stones content Slope	1.00 0.22 0.08 0.01 0.01
Bocker-----	30	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
227: Phys-----	85	Not limited		Not limited		Somewhat limited Large stones content	0.84
228: Phys-----	40	Not limited		Not limited		Somewhat limited Gravel content Slope	0.08 0.04
Doublecreek-----	30	Not limited		Not limited		Somewhat limited Slope	0.04
Collegecreek-----	20	Not limited		Not limited		Somewhat limited Slope	0.04
229: Phys-----	35	Somewhat limited Slope	0.92	Not limited		Very limited Slope Gravel content	1.00 0.08
Doublecreek-----	30	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Collegecreek-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
230: Powwatka-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock	0.90
231: Powwatka-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.90 0.63
232: Powwatka-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock	1.00 0.90
233: Powwatka-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock	1.00 0.90
234: Puzzlecreek-----	85	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 0.26 0.01
235: Ramo-----	85	Not limited		Not limited		Somewhat limited Large stones content	0.01
236: Ramo-----	85	Not limited		Not limited		Somewhat limited Slope Large stones content	0.63 0.01
237: Ramo-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope Large stones content	1.00 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
238: Ramo-----	50	Not limited		Not limited		Somewhat limited Slope Large stones content	0.04 0.01
Conley-----	35	Not limited		Not limited		Somewhat limited Depth to saturated zone Slope	0.19 0.04
239: Reavis-----	85	Not limited		Not limited		Not limited	
240: Redmount-----	85	Not limited		Not limited		Not limited	
241: Redmount-----	85	Not limited		Not limited		Not limited	
242: Redmount-----	85	Not limited		Not limited		Somewhat limited Gravel content	0.08
243: Redmount-----	50	Not limited		Not limited		Not limited	
Cheval-----	35	Not limited		Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.19
244: Riverwash-----	80	Not rated		Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Fivebit-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 1.00
247: Rock outcrop-----	35	Not rated		Not rated		Not rated	
Anatone-----	30	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Immaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
248: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
Imnaha-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
249: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Cherrycreek-----	20	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
250: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Linecreek-----	20	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Anatone-----	15	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 1.00
251: Rock outcrop-----	45	Not rated		Not rated		Not rated	
Rockly-----	25	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
Dixiejett-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content Droughty Large stones content	1.00 0.38 0.32 0.08

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
252: Rockly-----	35	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
Rock outcrop-----	30	Not rated		Not rated		Not rated	
Copperfield-----	20	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 1.00
253: Rockly-----	35	Very limited Slope Large stones content	1.00 0.18	Very limited Slope Large stones content	1.00 0.18	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Lickskillet-----	25	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
254: Rondowa-----	90	Not limited		Not limited		Not limited	
255: Rondowa-----	90	Not limited		Not limited		Somewhat limited Slope	0.63
256: Rondowa-----	90	Somewhat limited Large stones content	0.02	Somewhat limited Large stones content	0.02	Very limited Large stones content Slope	0.99 0.04
257: Rondowa-----	90	Somewhat limited Slope Large stones content	0.92 0.02	Somewhat limited Large stones content	0.02	Very limited Slope Large stones content	1.00 0.99
258: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.99
259: Rondowa-----	90	Somewhat limited Slope Large stones content	0.92 0.02	Somewhat limited Large stones content	0.02	Very limited Slope Large stones content	1.00 0.99
260: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.02	Very limited Slope Large stones content	1.00 0.99

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
261: Rondowa-----	90	Not limited		Not limited		Somewhat limited Large stones content Slope	0.92 0.04
262: Rondowa-----	90	Somewhat limited Slope	0.92	Not limited		Very limited Slope Large stones content	1.00 0.92
263: Rondowa-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content	1.00 0.92
264: Rondowa-----	90	Somewhat limited Slope	0.92	Not limited		Very limited Slope Large stones content	1.00 0.92
265: Rondowa-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content	1.00 0.92
266: Rubble land-----	70	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
267: Sag-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
268: Sag-----	85	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
269: Sag-----	85	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
270: Schrier-----	85	Not limited		Not limited		Not limited	
271: Schrier-----	55	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Almota-----	30	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Large stones content Depth to bedrock	1.00 0.08 0.01
272: Schrier-----	50	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
272: Almota-----	25	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Large stones content Depth to bedrock	1.00 0.08 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
273: Schuelke-----	55	Very limited Water erosion Slope	1.00 0.02	Very limited Water erosion	1.00	Very limited Slope Large stones content Depth to bedrock	1.00 0.32 0.20
Schrier-----	15	Very limited Water erosion Slope	1.00 0.02	Very limited Water erosion	1.00	Very limited Slope	1.00
Rockly-----	15	Somewhat limited Large stones content Slope	0.18 0.02	Somewhat limited Large stones content	0.18	Very limited Depth to bedrock Droughty Large stones content Slope	1.00 1.00 1.00 1.00
274: Silverlake-----	85	Not limited		Not limited		Not limited	
275: Slicklog-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
276: Slicklog-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Eastpine-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty	1.00 0.41
277: Slicklog-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Eastpine-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Droughty	1.00 0.41
Rock outcrop-----	10	Not rated		Not rated		Not rated	
278: Slicklog-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Wintercanyon-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Droughty	1.00 1.00 0.99
Rock outcrop-----	10	Not rated		Not rated		Not rated	
279: Snell-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Droughty	0.90 0.57



Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
280: Snell-----	65	Somewhat limited Large stones content	0.32	Somewhat limited Large stones content	0.32	Very limited Large stones content Depth to bedrock Droughty Slope	1.00 0.90 0.57 0.04
Harlow-----	25	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
281: Snell-----	60	Somewhat limited Slope Large stones content	0.92 0.32	Somewhat limited Large stones content	0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	25	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
282: Snell-----	50	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	40	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
283: Snell-----	55	Somewhat limited Slope Large stones content	0.92 0.32	Somewhat limited Large stones content	0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	30	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
284: Snell-----	65	Not limited		Not limited		Somewhat limited Depth to bedrock Droughty Slope	0.90 0.57 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
284: Harlow-----	25	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope	1.00 0.99 0.01
285: Snell-----	35	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	25	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Imnaha-----	25	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
286: Snell-----	35	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	25	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Imnaha-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
287: Snell-----	40	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
288: Snell-----	35	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Imnaha-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	25	Not rated		Not rated		Not rated	
289: Snow-----	85	Not limited		Not limited		Not limited	
290: Sopher-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
291: Sopher-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
292: Sopher-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Gwinly-----	25	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
293: Sopher-----	50	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Gwinly-----	35	Somewhat limited Slope Large stones content	0.92 0.32	Somewhat limited Large stones content	0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
294: Sopher-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Gwinly-----	35	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
295: Sturgill-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
296: Sturgill-----	45	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
Eggleson-----	40	Not limited		Not limited		Somewhat limited Droughty Gravel content	0.97 0.08
297: Sweitberg-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock	0.10
298: Sweitberg-----	85	Not limited		Not limited		Somewhat limited Slope Depth to bedrock	0.63 0.10
299: Sweiting-----	85	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Depth to bedrock Slope	0.20 0.04
300: Sweiting-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.20
301: Sweiting-----	50	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Depth to bedrock Slope	0.20 0.04
Harlow-----	40	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
302: Sweiting-----	50	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.20
Harlow-----	35	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
303: Sweiting-----	50	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.20
Klicker-----	40	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 0.84 0.09
304: Syrupcreek-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.54 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
305: Syrupcreek-----	60	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.54 0.01
Anatone-----	25	Somewhat limited Large stones content	0.68	Somewhat limited Large stones content	0.68	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 0.01
306: Syrupcreek-----	60	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.54 0.04
Lowerbluff-----	25	Not limited		Not limited		Very limited Depth to bedrock Slope	1.00 0.04
307: Syrupcreek-----	55	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock	1.00 0.54
Tamara-----	30	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
308: Syrupcreek-----	65	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.54
Tamara-----	20	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
309: Tamara-----	65	Not limited		Not limited		Somewhat limited Slope	0.01
Sherod-----	20	Somewhat limited Depth to saturated zone	0.86	Somewhat limited Depth to saturated zone	0.86	Very limited Depth to bedrock Depth to saturated zone Droughty	1.00 0.94 0.39
310: Tamara-----	45	Not limited		Not limited		Somewhat limited Slope	0.01
Syrupcreek-----	40	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.54 0.01
311: Tamarackcanyon-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Linecreek-----	25	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content	1.00 0.32	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
311: Harlow-----	20	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
312: Tamarackcanyon-----	65	Not limited		Not limited		Somewhat limited Slope	0.04
Lowerbluff-----	20	Not limited		Not limited		Very limited Depth to bedrock Slope	1.00 0.04
313: Tamarackcanyon-----	40	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Olot-----	25	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.03
Harlow-----	20	Somewhat limited Slope Large stones content	0.92 0.53	Somewhat limited Large stones content	0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
314: Tamarackcanyon-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Olot-----	25	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.03
Harlow-----	20	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
315: Tannahill-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content Droughty Gravel content	1.00 0.92 0.12 0.01
Schrier-----	35	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Water erosion	1.00 1.00	Very limited Slope	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Large stones content Droughty Gravel content	1.00 0.92 0.12 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
316: Schuelke-----	30	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope Large stones content Depth to bedrock	1.00 0.32 0.20
Lickskillet-----	25	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content	1.00 0.68	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 1.00 1.00
317: Thiessen-----	85	Somewhat limited Slope Large stones content	0.92 0.02	Somewhat limited Large stones content	0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
318: Threebuck-----	70	Not limited		Not limited		Somewhat limited Slope	0.04
Harlow-----	15	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
319: Threebuck-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Linecreek-----	30	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Harlow-----	20	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
320: Threebuck-----	50	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Tamarackcanyon-----	35	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
321: Threebuck-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Tamarackcanyon-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
322: Threebuck-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
322: Tamarackcanyon-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Harlow-----	20	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
323: Threebuck-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Tamarackcanyon-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Linecreek-----	20	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content	1.00 0.53	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
324: Tippett-----	70	Not limited		Not limited		Not limited	
Harlow-----	20	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 0.01
325: Tippett-----	70	Not limited		Not limited		Not limited	
Zumwalt-----	20	Not limited		Not limited		Somewhat limited Depth to bedrock	0.03
326: Tolo-----	85	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.04
327: Tolo-----	85	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
328: Tolo, fan-----	85	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.04
329: Tolo-----	50	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Getaway-----	35	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
330: Tolo-----	50	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00



Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
331: Tolo-----	50	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Getaway-----	35	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
332: Tolo-----	50	Very limited Slope Water erosion	1.00 1.00	Very limited Water erosion Slope	1.00 1.00	Very limited Slope	1.00
Getaway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
333: Tolo-----	50	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.04
Olot-----	35	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope Depth to bedrock	0.04 0.03
334: Tolo-----	55	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Olot-----	30	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.03
335: Topper-----	85	Not limited		Not limited		Not limited	
336: Topper-----	85	Not limited		Not limited		Somewhat limited Slope	0.63
337: Topper-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
338: Topper-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
339: Troutmeadows-----	65	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.35 0.04
Crawfish-----	20	Somewhat limited Large stones content	0.32	Somewhat limited Large stones content	0.32	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
340: Tuckerdowns-----	85	Not limited		Not limited		Somewhat limited Gravel content	0.08
341: Tuckerdowns-----	85	Not limited		Not limited		Somewhat limited Slope Gravel content	0.63 0.08

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
342: Tuckerdowns-----	85	Somewhat limited Slope	0.92	Not limited		Very limited Slope Gravel content	1.00 0.08
343: Vandamine-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.05
344: Vandamine-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock	1.00 0.05
Rock outcrop-----	10	Not rated		Not rated		Not rated	
345: Veazie-----	85	Not limited		Not limited		Somewhat limited Flooding	0.60
346: Voats-----	50	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding Droughty	0.60 0.22
Veazie-----	35	Not limited		Not limited		Somewhat limited Flooding	0.60
347: Volstead-----	35	Not limited		Not limited		Somewhat limited Slope	0.01
Quirk-----	30	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.01 0.01
Bocker-----	20	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
348: Volstead-----	35	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope	1.00
Quirk-----	30	Very limited Water erosion Slope	1.00 0.92	Very limited Water erosion	1.00	Very limited Slope Depth to bedrock	1.00 0.01
Bocker-----	20	Somewhat limited Slope Large stones content	0.92 0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
349: Wallowa-----	50	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.54 0.04
Bocker-----	40	Somewhat limited Large stones content	0.82	Somewhat limited Large stones content	0.82	Very limited Depth to bedrock Large stones content Droughty	1.00 1.00 1.00
350: Watama-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock	0.84
351: Watama-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.84 0.63
352: Watama-----	50	Not limited		Not limited		Somewhat limited Depth to bedrock Slope	0.84 0.04
Rockly-----	35	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18	Very limited Depth to bedrock Droughty Large stones content Slope	1.00 1.00 1.00 0.04
353: Water-----	95	Not rated		Not rated		Not rated	
354: Wilkins-----	85	Somewhat limited Depth to saturated zone Dusty	0.86 0.50	Somewhat limited Depth to saturated zone Dusty	0.86 0.50	Somewhat limited Depth to saturated zone Flooding	0.94 0.60
355: Wilkins-----	55	Somewhat limited Depth to saturated zone Dusty	0.86 0.50	Somewhat limited Depth to saturated zone Dusty	0.86 0.50	Somewhat limited Depth to saturated zone Flooding	0.94 0.60
Feaginranch-----	30	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Flooding	1.00 1.00 0.60
356: Wolot-----	85	Not limited		Not limited		Somewhat limited Slope	0.01
357: Zumwalt-----	65	Not limited		Not limited		Somewhat limited Depth to bedrock	0.03
Harlow-----	25	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 0.01

Table 11b.--Recreation (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
358: Zumwalt-----	65	Not limited		Not limited		Somewhat limited Slope Depth to bedrock	0.63 0.03
Harlow-----	25	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.63 0.01
359: Zumwalt-----	65	Not limited		Not limited		Somewhat limited Slope Depth to bedrock	0.04 0.03
Harlow-----	20	Somewhat limited Large stones content	0.53	Somewhat limited Large stones content	0.53	Very limited Droughty Depth to bedrock Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01

Table 12a.--Building Site Development (Part I)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Not limited		Somewhat limited Depth to saturated zone Shrink-swell	0.95 0.50	Somewhat limited Slope	0.12
2: Akerite-----	85	Somewhat limited Slope	0.63	Somewhat limited Depth to saturated zone Slope Shrink-swell	0.95 0.63 0.50	Very limited Slope	1.00
3: Albee-----	45	Somewhat limited Slope Depth to hard bedrock	0.04 0.01	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.01
Anatone-----	40	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
4: Albee-----	50	Somewhat limited Slope Depth to hard bedrock	0.04 0.01	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.01
Bocker-----	40	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99
5: Analulu-----	30	Very limited Slope Depth to hard bedrock	1.00 0.35	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.35
Slicklog-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bluecanyon-----	30	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
6: Analulu-----	40	Very limited Slope Depth to hard bedrock	1.00 0.35	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.35
Slicklog-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7: Anatone-----	50	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  1.00
Bocker-----	35	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00  0.99
8: Anatone-----	50	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00
Bocker-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  0.99
9: Anatone-----	50	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00
Bocker-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  0.99
10: Anatone-----	35	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  1.00
Bocker-----	30	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00  0.99
Fivebit-----	20	Very limited Depth to hard bedrock Slope	1.00  0.01	Very limited Depth to hard bedrock Slope	1.00  0.01	Very limited Depth to hard bedrock Slope	1.00  1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11: Anatone-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Bocker-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
Fivebit-----	20	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
12: Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Cherrycreek-----	30	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope Large stones content	1.00 1.00
Imnaha-----	20	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
13: Anatone-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Imnaha-----	35	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	10	Not rated		Not rated		Not rated	
14: Anatone-----	45	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Kamela-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.97 0.18	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.97 0.18

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15: Anatone-----	50	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Klicker-----	30	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	
16: Anatone-----	50	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Linecreek-----	25	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83
Rock outcrop-----	10	Not rated		Not rated		Not rated	
17: Anatone-----	50	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Olot-----	35	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
18: Anatone-----	45	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Clearline-----	15	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.08 0.01	Very limited Slope Large stones content	1.00 0.01
19: Anatone-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19: Rock outcrop-----	25	Not rated		Not rated		Not rated	
Fivebit-----	20	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
20: Anatone-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
21: Balm-----	50	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
Catherine-----	40	Very limited Flooding Depth to saturated zone	1.00 0.77	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.77
22: Bittercreek-----	65	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
Mippon-----	20	Very limited Flooding Large stones content	1.00 0.03	Very limited Flooding Depth to saturated zone Large stones content	1.00 0.61 0.03	Very limited Flooding Large stones content	1.00 0.03
23: Bocker-----	85	Very limited Depth to hard bedrock Large stones content	1.00 0.99	Very limited Depth to hard bedrock Large stones content	1.00 0.99	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.12
24: Bocker-----	60	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99
Anatone-----	15	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24: Rock outcrop-----	10	Not rated		Not rated		Not rated	
25: Bocker-----	60	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
Anatone-----	15	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
26: Bocker-----	50	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
Clearline-----	20	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.08 0.01	Very limited Slope Large stones content	1.00 0.01
Rock outcrop-----	20	Not rated		Not rated		Not rated	
27: Bocker-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
Imnaha-----	30	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	15	Not rated		Not rated		Not rated	
28: Bridgewater-----	90	Very limited Flooding Large stones content Slope	1.00 1.00 0.01	Very limited Flooding Large stones content Slope	1.00 1.00 0.01	Very limited Flooding Large stones content Slope	1.00 1.00 1.00
29: Btree-----	45	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00
Flycreek-----	40	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30: Btree-----	45	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00
Flycreek-----	40	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10
31: Btree-----	30	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00
Flycreek-----	30	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10
Anatone-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
32: Btree-----	30	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00
Flycreek-----	30	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10
Anatone-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
33: Btree-----	40	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 1.00
Klicker-----	30	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34: Bucketlake-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
35: Bucketlake-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
36: Buford-----	45	Somewhat limited Slope	0.04	Somewhat limited Depth to hard bedrock Slope	0.42 0.04	Very limited Slope	1.00
Anatone-----	40	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
37: Buford-----	45	Somewhat limited Slope	0.04	Somewhat limited Depth to hard bedrock Slope	0.42 0.04	Very limited Slope	1.00
Bocker-----	40	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Large stones content	0.99	Large stones content	0.99	Slope	1.00
		Slope	0.04	Slope	0.04	Large stones content	0.99
38: Bunchpoint-----	85	Somewhat limited Depth to hard bedrock Slope	0.29 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Slope Depth to hard bedrock	1.00 0.29
39: Bunchpoint-----	45	Somewhat limited Depth to hard bedrock Slope	0.29 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Slope Depth to hard bedrock	1.00 0.29
Bocker-----	40	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Large stones content	0.99	Large stones content	0.99	Slope	1.00
		Slope	0.01	Slope	0.01	Large stones content	0.99
40: Chard-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
41: Cherrycreek-----	50	Very limited Large stones content Slope	1.00 0.04	Very limited Large stones content Depth to hard bedrock Slope	1.00 0.18 0.04	Very limited Slope Large stones content	1.00 1.00
Imnaha-----	35	Somewhat limited Depth to hard bedrock	0.90	Very limited Depth to hard bedrock	1.00	Very limited Slope	1.00
		Slope	0.04	Slope	0.04	Depth to hard bedrock	0.90

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Cherrycreek-----	50	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope Large stones content	1.00 1.00
Imnaha-----	20	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Imnaha, moist-----	15	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
43: Cherrycreek-----	40	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope Large stones content	1.00 1.00
Imnaha-----	35	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	10	Not rated		Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope Large stones content	1.00 1.00
Limberjim-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05
Rock outcrop-----	10	Not rated		Not rated		Not rated	
45: Chesnimnus-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
46: Chesnimnus-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
47: Cheval-----	85	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39
48: Cloverland-----	90	Somewhat limited Shrink-swell Depth to saturated zone	0.50 0.07	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Shrink-swell Slope Depth to saturated zone	0.50 0.12 0.07

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49: Cloverland-----	90	Somewhat limited Slope Shrink-swell Depth to saturated zone	0.63 0.50 0.07	Very limited Depth to saturated zone Slope Shrink-swell	1.00 0.63 0.50	Very limited Slope Shrink-swell Depth to saturated zone	1.00 0.50 0.07
50: Conley-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.39	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Shrink-swell Depth to saturated zone	1.00 0.39
51: Conley-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.39	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.12
52: Copperfield-----	50	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23
Thiessen-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.18	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15
53: Copperfield-----	40	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23
Thiessen-----	30	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.18	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15
Rock outcrop-----	15	Not rated		Not rated		Not rated	
54: Cowsly-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.39	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 0.42	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.12
55: Cowsly-----	90	Very limited Shrink-swell Slope Depth to saturated zone	1.00 0.63 0.39	Very limited Depth to saturated zone Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.63 0.42	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.39

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56: Cowsly-----	85	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.04	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.42 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.39
57: Cowsly, cobbly-----	60	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.39	Very limited Slope Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 1.00 0.42	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.39
Cowsly-----	25	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.04	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.42 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.39
58: Cowsly, cobbly-----	60	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.39	Very limited Slope Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 1.00 0.42	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.39
Cowsly-----	25	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.04	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.42 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.39
59: Cowsly-----	60	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.04	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.42 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.39
Howmeadows-----	15	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 0.79	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 0.79
Sherod-----	15	Very limited Depth to saturated zone Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Depth to saturated zone Depth to hard bedrock Shrink-swell	1.00 1.00 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60: Demasters-----	50	Very limited Slope	1.00	Very limited Slope Depth to hard bedrock	1.00 0.88	Very limited Slope	1.00
Snell-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90
61: Dixiejett-----	35	Very limited Slope	1.00	Very limited Slope Depth to hard bedrock	1.00 0.93	Very limited Slope	1.00
Lickskillet-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rockly-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68
62: Doublecreek-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Flybow-----	30	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
63: Doublecreek-----	55	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Langrell-----	30	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18
64: Doublecreek-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Phys-----	40	Somewhat limited Slope Large stones content	0.04 0.01	Somewhat limited Slope Large stones content	0.04 0.01	Very limited Slope Large stones content	1.00 0.01
65: Downards-----	45	Very limited Slope Large stones content	1.00 0.44	Very limited Slope Large stones content	1.00 0.44	Very limited Slope Large stones content	1.00 0.44



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
65: Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
66: Downards-----	50	Very limited Slope Large stones content	1.00 0.44	Very limited Slope Large stones content	1.00 0.44	Very limited Slope Large stones content	1.00 0.44
Emily-----	20	Very limited Slope Large stones content	1.00 0.04	Very limited Slope Large stones content	1.00 0.04	Very limited Slope Large stones content	1.00 0.04
Sopher-----	20	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
67: Downards-----	60	Very limited Slope Large stones content	1.00 0.44	Very limited Slope Large stones content Depth to hard bedrock	1.00 0.44 0.32	Very limited Slope Large stones content	1.00 0.44
Klicker-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
68: Downards-----	60	Very limited Slope Large stones content	1.00 0.44	Very limited Slope Large stones content Depth to hard bedrock	1.00 0.44 0.32	Very limited Slope Large stones content	1.00 0.44
Klicker-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
69: Downeygulch-----	50	Somewhat limited Depth to hard bedrock Slope	0.90 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Slope Depth to hard bedrock	1.00 0.90
Lowerbluff-----	35	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70: Downeygulch-----	55	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Thirstygulch-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
71: Eggleson-----	85	Very limited Flooding Large stones content	1.00 0.01	Very limited Flooding Depth to saturated zone Large stones content	1.00 0.99 0.01	Very limited Flooding Large stones content	1.00 0.01
72: Emily-----	55	Very limited Slope Large stones content	1.00 0.04	Very limited Slope Large stones content	1.00 0.04	Very limited Slope Large stones content	1.00 0.04
Wolot-----	30	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
73: Endoaquolls, mesic--	85	Very limited Depth to saturated zone Shrink-swell Large stones content	1.00 0.50 0.47	Very limited Depth to saturated zone Large stones content	1.00 0.47	Very limited Depth to saturated zone Shrink-swell Large stones content	1.00 0.50 0.47
74: Ferguson-----	85	Somewhat limited Slope Large stones content	0.04 0.01	Somewhat limited Slope Large stones content	0.04 0.01	Very limited Slope Large stones content	1.00 0.01
75: Ferguson-----	85	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01
76: Ferguson-----	85	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01
77: Ferguson-----	85	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01
78: Ferguson-----	85	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Large stones content	1.00 0.01

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79: Flybow-----	40	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
80: Flybow-----	40	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
81: Flycreek-----	65	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.10 0.04	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.10
Flyvalley-----	20	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
82: Freels-----	85	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.61	Very limited Flooding	1.00
83: Geisercreek-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope	1.00	Very limited Slope Shrink-swell	1.00 0.50
84: Gelsinger-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
85: Gelsinger-----	85	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 0.50
86: Getaway-----	85	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
87: Getaway-----	85	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88: Getaway-----	45	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
Anatone-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
89: Getaway-----	50	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
Harlow-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
90: Getaway-----	50	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
Harlow-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
91: Getaway-----	40	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
Harlow-----	30	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
92: Getaway-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
Linecreek-----	30	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
93: Getaway-----	50	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.26	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.26	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.26
Snell-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
94: Gwin-----	55	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.47	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.47	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.47
Kettenbach-----	20	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	
95: Gwin-----	55	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.47	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.47	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.47

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95: Kettenbach-----	20	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  1.00 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90  0.74 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	
96: Gwin-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00  0.50 0.47	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00  0.50 0.47	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00  0.50 0.47
Klickson-----	30	Very limited Slope Large stones content Shrink-swell	1.00 0.85  0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85  0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85  0.50
Kettenbach-----	20	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90  0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50
97: Gwinly-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00  1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Kettenbach-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90  0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	
98: Gwinly-----	40	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00  1.00 1.00 0.99	Very limited Shrink-swell Depth to hard bedrock Slope Large stones content	1.00 1.00  1.00 0.99	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00  1.00 1.00 0.99
Mallory-----	35	Very limited Shrink-swell Slope Large stones content Depth to hard bedrock	1.00 1.00 0.93  0.79	Very limited Shrink-swell Depth to hard bedrock Slope Large stones content	1.00 1.00  1.00 0.93	Very limited Shrink-swell Slope Large stones content Depth to hard bedrock	1.00 1.00 0.93  0.79

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99: Gwinly-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Mallory-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79
100: Gwinly-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79
Kettenbach-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50
101: Gwinly-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79
Kettenbach-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
102: Gwinly-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79
Kettenbach-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.74 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50
103: Gwinly-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79
Rock outcrop-----	25	Not rated		Not rated		Not rated	
104: Gwinly-----	50	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.99 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.99 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.99
Rockly-----	35	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68
105: Gwinly-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
105: Rockly-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68
Rock outcrop-----	20	Not rated		Not rated		Not rated	
106: Gwinly-----	60	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Sopher-----	25	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
107: Gwinly-----	55	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
Sopher-----	25	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
108: Hapludolls, frigid--	35	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.99	Very limited Flooding	1.00
Endoaquolls, frigid	30	Very limited Flooding Depth to saturated zone Large stones content	1.00 1.00 0.85	Very limited Flooding Depth to saturated zone Large stones content	1.00 1.00 0.85	Very limited Flooding Depth to saturated zone Large stones content	1.00 1.00 0.85
Endoaquents, frigid	20	Very limited Flooding Depth to saturated zone Large stones content	1.00 1.00 0.53	Very limited Flooding Depth to saturated zone Large stones content	1.00 1.00 0.53	Very limited Flooding Depth to saturated zone Large stones content	1.00 1.00 0.53
109: Harl-----	40	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
109: Anatone-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
110: Harl-----	45	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55
Anatone-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
111: Harl-----	45	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55
Getaway-----	40	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
112: Harl-----	50	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55	Very limited Slope Large stones content	1.00 0.55
Limberjim-----	25	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05
Rock outcrop-----	10	Not rated		Not rated		Not rated	
113: Harlow-----	60	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 1.00 0.61
Bocker-----	25	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
114: Harlow-----	60	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Bocker-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
115: Harlow-----	45	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Bocker-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
116: Harlow-----	50	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.61
Bocker-----	35	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99
117: Harlow-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Bocker-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
118: Harlow-----	40	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00  1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00  1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00  1.00 1.00 0.61
Imnaha-----	35	Somewhat limited Depth to hard bedrock Slope	0.90  0.04	Very limited Depth to hard bedrock Slope	1.00  0.04	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	10	Not rated		Not rated		Not rated	
119: Harlow-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Imnaha-----	35	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	10	Not rated		Not rated		Not rated	
120: Harlow-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Imnaha-----	35	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	10	Not rated		Not rated		Not rated	
121: Harlow-----	50	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Klicker-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
122: Harlow-----	50	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Klicker-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
123: Harlow-----	35	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.61
Snell-----	25	Very limited Shrink-swell Large stones content Depth to hard bedrock Slope	1.00 1.00 0.90 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 0.04	Very limited Shrink-swell Slope Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Imnaha-----	25	Somewhat limited Depth to hard bedrock Slope	0.90 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.90
124: Harlow-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Snell-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Imnaha-----	25	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
125: Harlow-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
125: Snell-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Imnaha-----	25	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
126: Harlow-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Snell-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Rock outcrop-----	25	Not rated		Not rated		Not rated	
127: Harlow-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Tamarackcanyon-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01
Linecreek-----	20	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83
128: Harlow-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
128: Tamarackcanyon-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01
Olot-----	20	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
129: Harlow-----	50	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Threebuck-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.71 0.35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35
130: Hershal-----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
131: Hershal-----	50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
Voats-----	35	Very limited Flooding Large stones content	1.00 0.12	Very limited Flooding Depth to saturated zone Large stones content	1.00 0.24 0.12	Very limited Flooding Large stones content	1.00 0.12
132: Hershal-----	35	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
Voats-----	30	Very limited Flooding Large stones content	1.00 0.12	Very limited Flooding Depth to saturated zone Large stones content	1.00 0.24 0.12	Very limited Flooding Large stones content	1.00 0.12
Veazie-----	20	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.24	Very limited Flooding	1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
133: Howmeadows-----	50	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 0.79	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Depth to saturated zone Shrink-swell Depth to hard bedrock	1.00 1.00 0.79
Wilkins-----	35	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
134: Hurwal-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
135: Hurwal-----	90	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 0.50
136: Hurwal, deep-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.01	Very limited Slope Shrink-swell	1.00 0.50
137: Hurwal, deep-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.01	Very limited Slope Shrink-swell	1.00 0.50
138: Hurwal-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
139: Hurwal-----	90	Somewhat limited Slope Shrink-swell	0.63 0.50	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 0.50
140: Hurwal-----	90	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
141: Imnaha-----	55	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
142: Imnaha-----	35	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Imhaha, moist-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.90 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.90 0.01
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
143: Imnaha-----	40	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Bocker-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
Clearline-----	20	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.08 0.01	Very limited Slope Large stones content	1.00 0.01
144: Imnaha-----	45	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Cherrycreek-----	30	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope Large stones content	1.00 1.00
Anatone-----	15	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
145: Imnaha-----	40	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
145: Clearline-----	30	Very limited Slope Large stones content	1.00 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 0.08 0.01	Very limited Slope Large stones content	1.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
146: Imnaha-----	45	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Cherrycreek-----	20	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope Large stones content	1.00 1.00
147: Josset-----	85	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding	1.00
148: Kahler-----	50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
149: Kahler-----	40	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
150: Kahler-----	35	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Linecreek-----	30	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
150: Getaway-----	20	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
151: Kahler-----	35	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Linecreek-----	35	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83
Getaway-----	15	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
152: Klicker-----	85	Somewhat limited Depth to hard bedrock Large stones content Shrink-swell Slope	0.90 0.72 0.50 0.04	Very limited Depth to hard bedrock Large stones content Shrink-swell Slope	1.00 0.72 0.50 0.04	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
153: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
154: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
155: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  1.00  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
157: Klicker-----	50	Somewhat limited Depth to hard bedrock Large stones content Shrink-swell Slope	0.90  0.72  0.50  0.04	Very limited Depth to hard bedrock Large stones content Shrink-swell Slope	1.00  0.72  0.50  0.04	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
Anatone-----	35	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  1.00
158: Klicker-----	50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  1.00  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00
159: Klicker-----	50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  1.00  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00
160: Klicker-----	35	Somewhat limited Depth to hard bedrock Large stones content Shrink-swell Slope	0.90  0.72  0.50  0.01	Very limited Depth to hard bedrock Large stones content Shrink-swell Slope	1.00  0.72  0.50  0.01	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
Fivebit-----	30	Very limited Depth to hard bedrock Slope	1.00  0.01	Very limited Depth to hard bedrock Slope	1.00  0.01	Very limited Depth to hard bedrock Slope	1.00  1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
160: Anatone-----	20	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00  1.00  1.00
161: Klicker-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  1.00  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
Fivebit-----	30	Very limited Slope Depth to hard bedrock	1.00  1.00	Very limited Slope Depth to hard bedrock	1.00  1.00	Very limited Slope Depth to hard bedrock	1.00  1.00
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  1.00
162: Klicker-----	50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  1.00  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
Harlow-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00  0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00  1.00  0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00  0.61
163: Klicker-----	40	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  1.00  0.72  0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90  0.72  0.50
Kamela-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00  0.97  0.18	Very limited Slope Depth to hard bedrock Large stones content	1.00  1.00  0.18	Very limited Slope Depth to hard bedrock Large stones content	1.00  0.97  0.18
Fivebit-----	15	Very limited Slope Depth to hard bedrock	1.00  1.00	Very limited Slope Depth to hard bedrock	1.00  1.00	Very limited Slope Depth to hard bedrock	1.00  1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
164: Klicker-----	55	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.90 0.50 0.44	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.44	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.90 0.50 0.44
Olot-----	30	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
165: Klicker-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.90 0.50 0.44	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.44	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.90 0.50 0.44
Thirstygulch-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
166: Klicker-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.90 0.50 0.44	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.44	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.90 0.50 0.44
Thirstygulch-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
167: Klicker-----	40	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
167: Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
168: Klickson-----	35	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50
Anatone-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Larabee-----	25	Very limited Slope Shrink-swell  Depth to hard bedrock	1.00 0.50  0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell  Depth to hard bedrock	1.00 0.50  0.06
169: Klickson-----	35	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50
Anatone-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Larabee-----	25	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
170: Klickson-----	60	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50
Larabee-----	25	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
171: Klickson-----	35	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171: Larabee-----	30	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
Volstead-----	20	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 0.61 0.50	Very limited Slope Shrink-swell	1.00 0.50
172: Langrell-----	85	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18
173: Langrell-----	50	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18	Somewhat limited Large stones content	0.18
Snow-----	35	Not limited		Not limited		Not limited	
174: Larabee-----	35	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
Getaway-----	30	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
Klickson-----	20	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50
175: Larabee-----	35	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
Klickson-----	30	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50
Volstead-----	20	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 0.61 0.50	Very limited Slope Shrink-swell	1.00 0.50



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
176: Larabee-----	35	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
Klickson-----	30	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50	Very limited Slope Large stones content Shrink-swell	1.00 0.85 0.50
Volstead-----	20	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 0.61 0.50	Very limited Slope Shrink-swell	1.00 0.50
177: Larabee-----	45	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50 0.06 0.01	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.01	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
Melhorn-----	40	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
178: Larabee-----	45	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.06
Volstead-----	40	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 0.61 0.50	Very limited Slope Shrink-swell	1.00 0.50
179: Laufer-----	50	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.96 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.96 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.96
Thiessen-----	35	Somewhat limited Shrink-swell Large stones content Depth to hard bedrock Slope	0.50 0.18 0.15 0.04	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 0.50 0.18 0.04	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15
180: Laufer-----	50	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.96

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
180: Thiessen-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.18	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15
181: Laufer-----	45	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.96
Thiessen-----	40	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.18	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15
182: Laufer-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.96
Thiessen-----	30	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.18	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15
Rock outcrop-----	15	Not rated		Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.01	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.88 0.50 0.01	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.01
Lawyer-----	25	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.01	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.88 0.50 0.01	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.01
Gwinly-----	25	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
184: Lickskillet-----	40	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Dixiejett-----	25	Very limited Slope	1.00	Very limited Slope Depth to hard bedrock	1.00 0.93	Very limited Slope	1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
185: Lickskillet-----	40	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 1.00
Doublecreek-----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Rockly-----	20	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68
186: Lickskillet-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rockly-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68
187: Limberjim-----	85	Somewhat limited Shrink-swell Large stones content Slope	0.50 0.05 0.04	Somewhat limited Depth to hard bedrock Shrink-swell Large stones content Slope	0.99 0.50 0.05 0.04	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05
188: Limberjim-----	50	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
188: Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
189: Limberjim-----	60	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05
Syrupcreek-----	25	Very limited Slope Depth to hard bedrock	1.00 0.64	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.64
190: Limberjim-----	70	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05
Syrupcreek-----	15	Very limited Slope Depth to hard bedrock	1.00 0.64	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.64
191: Limberjim-----	45	Somewhat limited Shrink-swell Large stones content Slope	0.50 0.05 0.01	Somewhat limited Depth to hard bedrock Shrink-swell Large stones content Slope	0.99 0.50 0.05 0.01	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.05
Tamara-----	40	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
192: Linecreek-----	55	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83
Getaway-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
193: Lookingglass-----	85	Very limited Shrink-swell Depth to saturated zone	1.00 0.07	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Slope Depth to saturated zone	1.00 0.12 0.07

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
194: Lookingglass-----	85	Very limited Shrink-swell Slope Depth to saturated zone	1.00 0.63 0.07	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.63	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.07
195: Lookingglass, stony	85	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.07 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.07
196: Lookingglass, cobbly	60	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.07	Very limited Slope Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.07
Lookingglass-----	25	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.07 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.07
197: Lookingglass-----	65	Very limited Shrink-swell  Depth to saturated zone Slope	1.00  0.07 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.04	Very limited Shrink-swell  Slope Depth to saturated zone	1.00  1.00 0.07
Sopher-----	20	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
198: Lookingglass-----	65	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.07 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.07
Sopher-----	20	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
199: Lostine-----	85	Not limited		Not limited		Not limited	
200: Mallory-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.93 0.79

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
200: Gwinly-----	25	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.99
Lawyer-----	25	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.01	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  0.88  0.50 0.01	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.01
201: Mallory-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  1.00 0.93  0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  1.00 0.93  0.79
Gwinly-----	25	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.99
Lawyer-----	25	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.01	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  0.88  0.50 0.01	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.01
202: Mallory-----	40	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  1.00 0.93  0.79	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00 1.00 0.93	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  1.00 0.93  0.79
Lawyer-----	35	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.01	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  0.88  0.50 0.01	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
203: Matheny-----	35	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.43	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  0.88  0.50 0.43	Very limited Slope Shrink-swell Large stones content	1.00  0.50 0.43

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
203: Linville-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Laufer-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	bedrock	1.00	Shrink-swell	1.00
		Large stones content	0.96	Large stones content	0.96	Large stones content	0.96
204: Matterhorn-----	85	Somewhat limited Large stones content	0.93	Somewhat limited Large stones content	0.93	Somewhat limited Large stones content	0.93
205: Minam-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
206: Minam-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
207: Minam-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
208: Minam-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
209: Minam-----	90	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
210: Minam-----	90	Not limited		Not limited		Somewhat limited Slope	0.12
211: Minam-----	90	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
212: Minam-----	30	Not limited		Not limited		Somewhat limited Slope	0.12
Minam, gravelly----	20	Not limited		Not limited		Somewhat limited Slope	0.12
Endoquepts-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope	1.00 0.12
213: Minam, gravelly----	30	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
Minam, stony-----	25	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
Endoquepts-----	35	Very limited Depth to saturated zone Slope	1.00 0.63	Very limited Depth to saturated zone Slope	1.00 0.63	Very limited Slope Depth to saturated zone	1.00 1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
214: Mippon-----	90	Very limited Flooding Large stones content	1.00 0.03	Very limited Flooding Depth to saturated zone Large stones content	1.00 0.61 0.03	Very limited Flooding Large stones content	1.00 0.03
215: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope Depth to hard bedrock	1.00 0.42	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.42
216: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope Depth to hard bedrock	1.00 0.42	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.42
217: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope Depth to hard bedrock	1.00 0.42	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.42
218: Mountemily-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	25	Very limited Slope Depth to hard bedrock	1.00 0.42	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.42
Anatone, cold-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
219: Needhill-----	35	Very limited Slope	1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 0.50 0.18	Very limited Slope	1.00
Parsnip-----	25	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 0.50
Bocker-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
220: Needhill-----	45	Somewhat limited Slope	0.01	Somewhat limited Shrink-swell Depth to hard bedrock Slope	0.50 0.18 0.01	Very limited Slope	1.00
Zumwalt-----	40	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.03 0.01	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.01	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.03
221: Olot-----	85	Somewhat limited Depth to hard bedrock Slope	0.06 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.06
222: Olot-----	85	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
223: Olot-----	50	Somewhat limited Depth to hard bedrock Slope	0.06 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.06
Anatone-----	35	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
224: Olot-----	50	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
Anatone-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
225: Parsnip-----	85	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.12
226: Parsnip-----	55	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
226: Bocker-----	30	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00  0.99
227: Phys-----	85	Somewhat limited Large stones content	0.87	Somewhat limited Large stones content	0.87	Somewhat limited Large stones content Slope	0.87  0.12
228: Phys-----	40	Somewhat limited Slope Large stones content	0.04  0.01	Somewhat limited Slope Large stones content	0.04  0.01	Very limited Slope Large stones content	1.00  0.01
Doublecreek-----	30	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Collegecreek-----	20	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
229: Phys-----	35	Very limited Slope Large stones content	1.00  0.01	Very limited Slope Large stones content	1.00  0.01	Very limited Slope Large stones content	1.00  0.01
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Collegecreek-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
230: Powwatka-----	85	Somewhat limited Depth to hard bedrock Shrink-swell	0.90  0.50	Very limited Depth to hard bedrock Shrink-swell	1.00  0.50	Somewhat limited Depth to hard bedrock Shrink-swell Slope	0.90  0.50  0.12
231: Powwatka-----	85	Somewhat limited Depth to hard bedrock Slope Shrink-swell	0.90  0.63 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00  0.63 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00  0.90  0.50
232: Powwatka-----	85	Very limited Slope Depth to hard bedrock Shrink-swell	1.00  0.90 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00  1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00  0.90  0.50
233: Powwatka-----	85	Very limited Slope Depth to hard bedrock Shrink-swell	1.00  0.90 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00  1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00  0.90  0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
234: Puzzlecreek-----	85	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.01
235: Ramo-----	85	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell Slope	1.00 0.12
236: Ramo-----	85	Very limited Shrink-swell Slope	1.00 0.63	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 1.00
237: Ramo-----	85	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 1.00
238: Ramo-----	50	Very limited Shrink-swell Slope	1.00 0.04	Somewhat limited Shrink-swell Slope	0.50 0.04	Very limited Shrink-swell Slope	1.00 1.00
Conley-----	35	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 0.50 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.39
239: Reavis-----	85	Not limited		Not limited		Not limited	
240: Redmount-----	85	Not limited		Not limited		Not limited	
241: Redmount-----	85	Not limited		Not limited		Somewhat limited Slope	0.50
242: Redmount-----	85	Not limited		Not limited		Not limited	
243: Redmount-----	50	Not limited		Not limited		Not limited	
Cheval-----	35	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39
244: Riverwash-----	80	Not rated		Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated		Not rated	

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
246:							
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Fivebit-----	15	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
247:							
Rock outcrop-----	35	Not rated		Not rated		Not rated	
Anatone-----	30	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Imnaha-----	20	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
248:							
Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
Imnaha-----	15	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
249:							
Rock outcrop-----	50	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Cherrycreek-----	20	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope Large stones content	1.00 1.00
250:							
Rock outcrop-----	50	Not rated		Not rated		Not rated	
Linecreek-----	20	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
250: Anatone-----	15	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
251: Rock outcrop-----	45	Not rated		Not rated		Not rated	
Rockly-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68
Dixiejett-----	20	Very limited Slope	1.00	Very limited Slope Depth to hard bedrock	1.00 0.93	Very limited Slope	1.00
252: Rockly-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68
Rock outcrop-----	30	Not rated		Not rated		Not rated	
Copperfield-----	20	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.23
253: Rockly-----	35	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.68
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Lickskillet-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
254: Rondowa-----	90	Not limited		Not limited		Somewhat limited Slope	0.12
255: Rondowa-----	90	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
256: Rondowa-----	90	Somewhat limited Large stones content Slope	0.10 0.04	Somewhat limited Large stones content Slope	0.10 0.04	Very limited Slope Large stones content	1.00 0.10
257: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10
258: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10
259: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10
260: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10	Very limited Slope Large stones content	1.00 0.10
261: Rondowa-----	90	Somewhat limited Large stones content Slope	0.06 0.04	Somewhat limited Large stones content Slope	0.06 0.04	Very limited Slope Large stones content	1.00 0.06
262: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06
263: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06
264: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06
265: Rondowa-----	90	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06	Very limited Slope Large stones content	1.00 0.06
266: Rubble land-----	70	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
267: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
268: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
269: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
270: Schrier-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
271: Schrier-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Almota-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
272: Schrier-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Almota-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
273: Schuelke-----	55	Very limited Slope	1.00	Very limited Depth to hard bedrock	1.00	Very limited Slope	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
		Large stones content	0.37	Slope	1.00	Large stones content	0.37
		Depth to hard bedrock	0.20	Shrink-swell Large stones content	0.50 0.37	Depth to hard bedrock	0.20
Schrier-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rockly-----	15	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Slope	1.00
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Large stones content	0.68	Large stones content	0.68	Large stones content	0.68
274: Silverlake-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
275: Slicklog-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
276: Slicklog-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Eastpine-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	0.13	Depth to hard bedrock	1.00	Large stones content	0.13
		Depth to hard bedrock	0.01	Large stones content	0.13	Depth to hard bedrock	0.01

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
277: Slicklog-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Eastpine-----	20	Very limited Slope Large stones content Depth to hard bedrock	1.00 0.13 0.01	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.13	Very limited Slope Large stones content Depth to hard bedrock	1.00 0.13 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
278: Slicklog-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Wintercanyon-----	25	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
279: Snell-----	85	Very limited Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.90	Very limited Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Shrink-swell Large stones content Depth to hard bedrock Slope	1.00 1.00 0.90 0.12
280: Snell-----	65	Very limited Shrink-swell Large stones content Depth to hard bedrock Slope	1.00 1.00 0.90 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 0.04	Very limited Shrink-swell Slope Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.61
281: Snell-----	60	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
282: Snell-----	50	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	40	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
283: Snell-----	55	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	30	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
284: Snell-----	65	Very limited Shrink-swell Large stones content Depth to hard bedrock Slope	1.00 1.00 0.90 0.01	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 0.01	Very limited Shrink-swell Slope Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.06 0.01	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.06 0.01	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.06
285: Snell-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
285: Imnaha-----	25	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
286: Snell-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	25	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Imnaha-----	25	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
287: Snell-----	40	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Harlow-----	30	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
Rock outcrop-----	15	Not rated		Not rated		Not rated	
288: Snell-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 1.00	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.90
Imnaha-----	25	Very limited Slope Depth to hard bedrock	1.00 0.90	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.90
Rock outcrop-----	25	Not rated		Not rated		Not rated	
289: Snow-----	85	Not limited		Not limited		Not limited	

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
290: Sopher-----	85	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
291: Sopher-----	85	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
292: Sopher-----	60	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
Gwinly-----	25	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
293: Sopher-----	50	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
Gwinly-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
294: Sopher-----	50	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.88	Very limited Slope Shrink-swell	1.00 1.00
Gwinly-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.99
295: Sturgill-----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
296: Sturgill-----	45	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00
Eggleson-----	40	Very limited Flooding Large stones content	1.00 0.01	Very limited Flooding Depth to saturated zone Large stones content	1.00 0.99 0.01	Very limited Flooding Large stones content	1.00 0.01
297: Sweitberg-----	85	Very limited Shrink-swell Depth to hard bedrock	1.00 0.10	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 0.12 0.10
298: Sweitberg-----	85	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.63 0.10	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.63	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.10
299: Sweiting-----	85	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.29 0.04	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.29
300: Sweiting-----	85	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.29	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.29
301: Sweiting-----	50	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.29 0.04	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.29
Harlow-----	40	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.61
302: Sweiting-----	50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.29	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.29

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
302: Harlow-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
303: Sweiting-----	50	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.29	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.29
Klicker-----	40	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.72 0.50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.72 0.50
304: Syrupcreek-----	85	Somewhat limited Depth to hard bedrock Slope	0.64 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Slope Depth to hard bedrock	1.00 0.64
305: Syrupcreek-----	60	Somewhat limited Depth to hard bedrock Slope	0.64 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Slope Depth to hard bedrock	1.00 0.64
Anatone-----	25	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
306: Syrupcreek-----	60	Somewhat limited Depth to hard bedrock Slope	0.64 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.64
Lowerbluff-----	25	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
307: Syrupcreek-----	55	Very limited Slope Depth to hard bedrock	1.00 0.64	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.64
Tamara-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
308: Syrupcreek-----	65	Very limited Slope Depth to hard bedrock	1.00 0.64	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.64

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
308: Tamara-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
309: Tamara-----	65	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
Sherod-----	20	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
310: Tamara-----	45	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
Syrupcreek-----	40	Somewhat limited Depth to hard bedrock	0.64	Very limited Depth to hard bedrock	1.00	Very limited Slope	1.00
		Slope	0.01	Slope	0.01	Depth to hard bedrock	0.64
311: Tamarackcanyon-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Large stones content	0.37	Depth to hard bedrock	1.00	Large stones content	0.37
		Depth to hard bedrock	0.01	Large stones content	0.37	Depth to hard bedrock	0.01
Linecreek-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	0.83	Large stones content	0.83	Large stones content	0.83
Harlow-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
		Large stones content	0.61	Large stones content	0.61	Large stones content	0.61
312: Tamarackcanyon-----	65	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
		Large stones content	0.37	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.04	Large stones content	0.37	Large stones content	0.37
		Depth to hard bedrock	0.01	Slope	0.04	Depth to hard bedrock	0.01
Lowerbluff-----	20	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
313: Tamarackcanyon-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Large stones content	0.37	Depth to hard bedrock	1.00	Large stones content	0.37
		Depth to hard bedrock	0.01	Large stones content	0.37	Depth to hard bedrock	0.01

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
313: Olot-----	25	Very limited Slope Depth to hard bedrock	1.00  0.06	Very limited Slope Depth to hard bedrock	1.00  1.00	Very limited Slope Depth to hard bedrock	1.00  0.06
Harlow-----	20	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00 1.00  0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.61
314: Tamarackcanyon-----	40	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  1.00 0.37  0.01	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00 1.00  0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  1.00 0.37  0.01
Olot-----	25	Very limited Slope Depth to hard bedrock	1.00  0.06	Very limited Slope Depth to hard bedrock	1.00  1.00	Very limited Slope Depth to hard bedrock	1.00  0.06
Harlow-----	20	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00  1.00 1.00  0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  1.00 0.61
315: Tannahill-----	35	Very limited Slope Large stones content Shrink-swell	1.00  0.99  0.50	Very limited Slope Large stones content Depth to hard bedrock Shrink-swell	1.00  0.99  0.61 0.50	Very limited Slope Large stones content Shrink-swell	1.00  0.99  0.50
Schrrier-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope Large stones content Shrink-swell	1.00  0.99  0.50	Very limited Slope Large stones content Depth to hard bedrock Shrink-swell	1.00  0.99  0.61 0.50	Very limited Slope Large stones content Shrink-swell	1.00  0.99  0.50
Schuelke-----	30	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  0.50 0.37  0.20	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00  1.00  0.50 0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00  0.50 0.37  0.20

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
316: Lickskillet-----	25	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00
317: Thiessen-----	85	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.50 0.18	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.18 0.15
318: Threebuck-----	70	Somewhat limited Shrink-swell Large stones content Slope	0.50 0.35 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 0.71 0.35 0.04	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35
Harlow-----	15	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.61
319: Threebuck-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.71 0.35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35
Linecreek-----	30	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83
Harlow-----	20	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
320: Threebuck-----	50	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.71 0.35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35



Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
320: Tamarackcanyon-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01
321: Threebuck-----	50	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.71 0.35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35
Tamarackcanyon-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01
322: Threebuck-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.71 0.35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35
Tamarackcanyon-----	30	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01
Harlow-----	20	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 0.61
323: Threebuck-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.71 0.35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.35
Tamarackcanyon-----	30	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01	Very limited Slope Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 1.00 0.37 0.01

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
323: Linecreek-----	20	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Large stones content	1.00 0.83
324: Tippett-----	70	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 0.32	Very limited Shrink-swell	1.00
Harlow-----	20	Very limited Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.61	Very limited Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.61
325: Tippett-----	70	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 0.32	Very limited Shrink-swell	1.00
Zumwalt-----	20	Very limited Shrink-swell Depth to hard bedrock	1.00 0.03	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 0.03
326: Tolo-----	85	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Shrink-swell Slope	0.50 0.04	Very limited Slope Shrink-swell	1.00 0.50
327: Tolo-----	85	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
328: Tolo, fan-----	85	Somewhat limited Slope	0.04	Somewhat limited Shrink-swell Slope	0.50 0.04	Very limited Slope	1.00
329: Tolo-----	50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Getaway-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
330: Tolo-----	50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Getaway-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
331: Tolo-----	50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Getaway-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
332: Tolo-----	50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Getaway-----	35	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 0.61 0.50 0.18	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.18
333: Tolo-----	50	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Shrink-swell Slope	0.50 0.04	Very limited Slope Shrink-swell	1.00 0.50
Olot-----	35	Somewhat limited Depth to hard bedrock Slope	0.06 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.06
334: Tolo-----	55	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Olot-----	30	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
335: Topper-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
336: Topper-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
337: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
338: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
339: Troutmeadows-----	65	Somewhat limited Depth to hard bedrock Slope	0.42 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.42

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
339: Crawfish-----	20	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.92  0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.92  0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00  0.92
340: Tuckerdowns-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
341: Tuckerdowns-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
342: Tuckerdowns-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
343: Vandamine-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope Depth to hard bedrock	1.00 0.10	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.10
344: Vandamine-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope Depth to hard bedrock	1.00 0.10	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.10
Rock outcrop-----	10	Not rated		Not rated		Not rated	
345: Veazie-----	85	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.24	Very limited Flooding	1.00
346: Voats-----	50	Very limited Flooding Large stones content	1.00 0.12	Very limited Flooding Depth to saturated zone Large stones content	1.00 0.24 0.12	Very limited Flooding Large stones content	1.00 0.12
Veazie-----	35	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.24	Very limited Flooding	1.00
347: Volstead-----	35	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Depth to hard bedrock Shrink-swell Slope	0.61  0.50 0.01	Very limited Slope Shrink-swell	1.00 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
347: Quirk-----	30	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.03 0.01	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.01	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.03
Bocker-----	20	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99
348: Volstead-----	35	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 0.61 0.50	Very limited Slope Shrink-swell	1.00 0.50
Quirk-----	30	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.03	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.03
Bocker-----	20	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 0.99
349: Wallowa-----	50	Somewhat limited Depth to hard bedrock Slope	0.54 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Slope Depth to hard bedrock	1.00 0.54
Bocker-----	40	Very limited Depth to hard bedrock Large stones content	1.00 0.99	Very limited Depth to hard bedrock Large stones content	1.00 0.99	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.12
350: Watama-----	85	Somewhat limited Depth to hard bedrock Shrink-swell	0.84 0.50	Very limited Depth to hard bedrock Shrink-swell	1.00 0.50	Somewhat limited Depth to hard bedrock Shrink-swell Slope	0.84 0.50 0.12
351: Watama-----	85	Somewhat limited Depth to hard bedrock Slope Shrink-swell	0.84 0.63 0.50	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 0.63 0.50	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 0.84 0.50
352: Watama-----	50	Somewhat limited Depth to hard bedrock Shrink-swell Slope	0.84 0.50 0.04	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.04	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 0.84 0.50

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
352: Rockly-----	35	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.68  0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.68  0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00   0.68
353: Water-----	95	Not rated		Not rated		Not rated	
354: Wilkins-----	85	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
355: Wilkins-----	55	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Feaginranch-----	30	Very limited Flooding Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell Ponding	1.00 1.00 1.00 1.00
356: Wolot-----	85	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Shrink-swell Slope	0.50 0.01	Very limited Slope Shrink-swell	1.00 0.50
357: Zumwalt-----	65	Very limited Shrink-swell Depth to hard bedrock	1.00 0.03	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.12 0.03
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 0.61	Very limited Shrink-swell Depth to hard bedrock Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.61  0.12
358: Zumwalt-----	65	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.63 0.03	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.63	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 0.03
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 0.63 0.61	Very limited Shrink-swell Depth to hard bedrock Slope Large stones content	1.00 1.00 0.63 0.61	Very limited Slope Depth to hard bedrock Shrink-swell Large stones content	1.00 1.00 1.00 1.00 0.61

Table 12a.--Building Site Development (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
359: Zumwalt-----	65	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.04 0.03	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 1.00 0.03
Harlow-----	20	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Shrink-swell Depth to hard bedrock Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content	1.00 1.00 1.00 0.61

Table 12b.--Building Site Development (Part II)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.95 0.10	Not limited	
2: Akerite-----	85	Somewhat limited Slope  Frost action	0.63  0.50	Somewhat limited Depth to saturated zone Slope Cutbanks cave	0.95  0.63 0.10	Somewhat limited Slope	0.63
3: Albee-----	45	Somewhat limited Frost action Slope Depth to hard bedrock	0.50 0.04 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  0.10 0.04	Somewhat limited Slope Depth to bedrock	0.04 0.01
Anatone-----	40	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00  1.00  0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00  1.00  0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00  1.00 0.04
4: Albee-----	50	Somewhat limited Frost action Slope Depth to hard bedrock	0.50 0.04 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  0.10 0.04	Somewhat limited Slope Depth to bedrock	0.04 0.01
Bocker-----	40	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00  0.99  0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00  1.00 0.04
5: Analulu-----	30	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.35	Very limited Depth to hard bedrock Cutbanks cave	1.00  1.00 1.00	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	1.00 0.99 0.35 0.13 0.08
Slicklog-----	30	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.07



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5: Bluecanyon-----	30	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty Gravel content Large stones content	1.00 1.00 1.00 0.96 0.32
6: Analulu-----	40	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.35	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	1.00 0.99 0.35 0.13 0.08
Slicklog-----	35	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.07
Rock outcrop-----	10	Not rated		Not rated		Not rated	
7: Anatone-----	50	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 1.00 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 1.00 0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
Bocker-----	35	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.99 0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
8: Anatone-----	50	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Bocker-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00
9: Anatone-----	50	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9: Bocker-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
10: Anatone-----	35	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 0.50 0.01	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.01	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
Bocker-----	30	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.99 0.50 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
Fivebit-----	20	Very limited Depth to hard bedrock Frost action Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01	Very limited Depth to bedrock Droughty Gravel content Slope	1.00 1.00 1.00 0.01
11: Anatone-----	40	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Bocker-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Fivebit-----	20	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty Gravel content	1.00 1.00 1.00 1.00
12: Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12: Cherrycreek-----	30	Very limited Slope Large stones content Frost action	1.00 1.00 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Imnaha-----	20	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
13: Anatone-----	40	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Imnaha-----	35	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
14: Anatone-----	45	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Kamela-----	40	Very limited Slope Depth to hard bedrock Frost action Large stones content	1.00 0.97 0.50 0.18	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Depth to bedrock Droughty Large stones content	1.00 0.97 0.54 0.08
15: Anatone-----	50	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Klicker-----	30	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16: Anatone-----	50	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Linecreek-----	25	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Rock outcrop-----	10	Not rated		Not rated		Not rated	
17: Anatone-----	50	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Olot-----	35	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.06 0.01
18: Anatone-----	45	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Clearline-----	15	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.08 0.01	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
19: Anatone-----	40	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Fivebit-----	20	Very limited Depth to hard bedrock Slope Frost action	1.00  1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 0.10	Very limited Depth to bedrock Slope Droughty Gravel content	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20: Anatone-----	40	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
21: Balm-----	50	Somewhat limited Depth to saturated zone Frost action Flooding	0.75 0.50 0.40	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Somewhat limited Depth to saturated zone	0.75
Catherine-----	40	Very limited Frost action Flooding Low strength Depth to saturated zone	1.00 1.00 1.00 0.43	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.43
22: Bittercreek-----	65	Very limited Frost action Depth to saturated zone Flooding	1.00 0.99 0.40	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	0.99
Mippon-----	20	Somewhat limited Flooding Large stones content	0.40 0.03	Very limited Cutbanks cave Depth to saturated zone Large stones content	1.00 0.61 0.03	Somewhat limited Droughty	0.88
23: Bocker-----	85	Very limited Depth to hard bedrock Large stones content Frost action	1.00 0.99 0.50	Very limited Depth to hard bedrock Large stones content	1.00 0.99	Very limited Depth to bedrock Large stones content Droughty	1.00 1.00 1.00
24: Bocker-----	60	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.99 0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
Anatone-----	15	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25: Bocker-----	60	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Anatone-----	15	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
26: Bocker-----	50	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Clearline-----	20	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.08 0.01	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
Rock outcrop-----	20	Not rated		Not rated		Not rated	
27: Bocker-----	40	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Imnaha-----	30	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	15	Not rated		Not rated		Not rated	
28: Bridgewater-----	90	Very limited Flooding Large stones content Frost action Slope	1.00 1.00 0.50 0.01	Very limited Cutbanks cave Large stones content Flooding Slope	1.00 1.00 0.60 0.01	Very limited Large stones content Droughty Flooding Slope	1.00 0.96 0.60 0.01
29: Btree-----	45	Very limited Slope Frost action Shrink-swell	1.00 1.00 1.00	Very limited Slope Cutbanks cave Too clayey	1.00 1.00 0.03	Very limited Slope	1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
29: Flycreek-----	40	Very limited Slope Frost action Shrink-swell Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.10	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	1.00 1.00 1.00 1.00 0.03	Very limited Slope Depth to bedrock	1.00 0.10
30: Btree-----	45	Very limited Slope Frost action Shrink-swell	1.00 1.00 1.00	Very limited Slope Cutbanks cave Too clayey	1.00 1.00 0.03	Very limited Slope	1.00
Flycreek-----	40	Very limited Slope Frost action Shrink-swell Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.10	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	1.00 1.00 1.00 1.00 0.03	Very limited Slope Depth to bedrock	1.00 0.10
31: Btree-----	30	Very limited Slope Frost action Shrink-swell	1.00 1.00 1.00	Very limited Slope Cutbanks cave Too clayey	1.00 1.00 0.03	Very limited Slope	1.00
Flycreek-----	30	Very limited Slope Frost action Shrink-swell Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.10	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	1.00 1.00 1.00 1.00 0.03	Very limited Slope Depth to bedrock	1.00 0.10
Anatone-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
32: Btree-----	30	Very limited Slope Frost action Shrink-swell	1.00 1.00 1.00	Very limited Slope Cutbanks cave Too clayey	1.00 1.00 0.03	Very limited Slope	1.00
Flycreek-----	30	Very limited Slope Frost action Shrink-swell Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.10	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	1.00 1.00 1.00 1.00 0.03	Very limited Slope Depth to bedrock	1.00 0.10
Anatone-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
33: Btree-----	40	Very limited Slope Frost action Shrink-swell	1.00 1.00 1.00	Very limited Slope Cutbanks cave Too clayey	1.00 1.00 0.03	Very limited Slope	1.00
Klicker-----	30	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
34: Bucketlake-----	85	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
35: Bucketlake-----	85	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
36: Buford-----	45	Somewhat limited Frost action Slope	0.50 0.04	Somewhat limited Depth to hard bedrock Too clayey Cutbanks cave Slope	0.42 0.12 0.10 0.04	Somewhat limited Slope	0.04
Anatone-----	40	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
37: Buford-----	45	Somewhat limited Frost action Slope	0.50 0.04	Somewhat limited Depth to hard bedrock Too clayey Cutbanks cave Slope	0.42 0.12 0.10 0.04	Somewhat limited Slope	0.04
Bocker-----	40	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.99 0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
38: Bunchpoint-----	85	Somewhat limited Frost action Depth to hard bedrock Slope	0.50 0.29 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 1.00 0.01	Somewhat limited Depth to bedrock Slope	0.29 0.01
39: Bunchpoint-----	45	Somewhat limited Frost action Depth to hard bedrock Slope	0.50 0.29 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 1.00 0.01	Somewhat limited Depth to bedrock Slope	0.29 0.01
Bocker-----	40	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.99 0.50 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
40: Chard-----	90	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
41: Cherrycreek-----	50	Very limited Large stones content Frost action Slope	1.00 0.50 0.04	Very limited Large stones content Depth to hard bedrock Cutbanks cave Slope	1.00 0.18 0.10 0.04	Very limited Large stones content Gravel content Slope	1.00 0.20 0.04
Imnaha-----	35	Somewhat limited Depth to hard bedrock Frost action Slope	0.90 0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 1.00 0.04	Somewhat limited Depth to bedrock Large stones content Slope	0.90 0.08 0.04
42: Cherrycreek-----	50	Very limited Slope Large stones content Frost action	1.00 1.00 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Imnaha-----	20	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Imnaha, moist-----	15	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43: Cherrycreek-----	40	Very limited Slope Large stones content Frost action	1.00 1.00 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Imnaha-----	35	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Large stones content Frost action	1.00 1.00 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
Limberjim-----	35	Very limited Slope Frost action Shrink-swell Large stones content	1.00 1.00 0.50 0.05	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.99 0.05	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
45: Chesnimnus-----	85	Somewhat limited Shrink-swell Frost action Low strength	0.50 0.50 0.22	Very limited Cutbanks cave	1.00	Not limited	
46: Chesnimnus-----	85	Somewhat limited Shrink-swell Frost action Low strength	0.50 0.50 0.22	Very limited Cutbanks cave	1.00	Not limited	
47: Cheval-----	85	Very limited Flooding Frost action Depth to saturated zone	1.00 0.50 0.19	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.19
48: Cloverland-----	90	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 1.00 0.50 0.03	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 0.10 0.02	Somewhat limited Depth to saturated zone	0.03

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49: Cloverland-----	90	Very limited Frost action Low strength Slope Shrink-swell Depth to saturated zone	1.00 1.00 0.63 0.50 0.03	Very limited Depth to saturated zone Slope Cutbanks cave Too clayey	1.00 0.63 0.10 0.02	Somewhat limited Slope Depth to saturated zone	0.63 0.03
50: Conley-----	90	Very limited Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 0.50 0.19	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 0.12	Somewhat limited Depth to saturated zone	0.19
51: Conley-----	90	Very limited Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 0.50 0.19	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 0.12	Somewhat limited Depth to saturated zone	0.19
52: Copperfield-----	50	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.23	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.23	Very limited Slope Large stones content	1.00 1.00
Thiessen-----	35	Very limited Slope Shrink-swell Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.50 0.18 0.15	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave Too clayey	1.00 1.00 0.18 0.10 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
53: Copperfield-----	40	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.23	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.23	Very limited Slope Large stones content	1.00 1.00
Thiessen-----	30	Very limited Slope Shrink-swell Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.50 0.18 0.15	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave Too clayey	1.00 1.00 0.18 0.10 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
Rock outcrop-----	15	Not rated		Not rated		Not rated	
54: Cowsly-----	90	Very limited Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 0.50 0.19	Very limited Depth to saturated zone Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.42 0.12 0.10	Somewhat limited Depth to saturated zone	0.19

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
55: Cowsly-----	90	Very limited Low strength Shrink-swell Slope Frost action Depth to saturated zone	1.00 1.00 0.63 0.50 0.19	Very limited Depth to saturated zone Slope Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.63 0.42 0.12 0.10	Somewhat limited Slope Depth to saturated zone	0.63 0.19
56: Cowsly-----	85	Very limited Low strength Shrink-swell Frost action Depth to saturated zone Slope	1.00 1.00 0.50 0.19 0.04	Very limited Depth to saturated zone Depth to hard bedrock Too clayey Cutbanks cave Slope	1.00 0.42 0.12 0.10 0.04	Very limited Large stones content Depth to saturated zone Slope	0.99 0.19 0.04
57: Cowsly, cobbly-----	60	Very limited Slope Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 1.00 0.50 0.19	Very limited Slope Depth to saturated zone Depth to hard bedrock Too clayey Cutbanks cave	1.00 1.00 0.42 0.12 0.10	Very limited Slope Large stones content Depth to saturated zone	1.00 0.32 0.19
Cowsly-----	25	Very limited Low strength Shrink-swell Frost action Depth to saturated zone Slope	1.00 1.00 0.50 0.19 0.04	Very limited Depth to saturated zone Depth to hard bedrock Too clayey Cutbanks cave Slope	1.00 0.42 0.12 0.10 0.04	Somewhat limited Depth to saturated zone Slope	0.19 0.04
58: Cowsly, cobbly-----	60	Very limited Slope Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 1.00 0.50 0.19	Very limited Slope Depth to saturated zone Depth to hard bedrock Too clayey Cutbanks cave	1.00 1.00 0.42 0.12 0.10	Very limited Slope Large stones content Depth to saturated zone	1.00 0.32 0.19
Cowsly-----	25	Very limited Low strength Shrink-swell Frost action Depth to saturated zone Slope	1.00 1.00 0.50 0.19 0.04	Very limited Depth to saturated zone Depth to hard bedrock Too clayey Cutbanks cave Slope	1.00 0.42 0.12 0.10 0.04	Somewhat limited Depth to saturated zone Slope	0.19 0.04
59: Cowsly-----	60	Very limited Low strength Shrink-swell Frost action Depth to saturated zone Slope	1.00 1.00 0.50 0.19 0.04	Very limited Depth to saturated zone Depth to hard bedrock Too clayey Cutbanks cave Slope	1.00 0.42 0.12 0.10 0.04	Somewhat limited Depth to saturated zone Slope	0.19 0.04

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59: Howmeadows-----	15	Very limited Depth to saturated zone Frost action Shrink-swell Low strength Depth to hard bedrock	1.00  1.00 1.00 1.00 0.79	Very limited Depth to hard bedrock Depth to saturated zone Cutbanks cave Too clayey	1.00  1.00 1.00 0.03	Very limited Depth to saturated zone Depth to bedrock Droughty	1.00  0.80 0.03
Sherod-----	15	Very limited Depth to hard bedrock Frost action Depth to saturated zone Low strength Shrink-swell	1.00  1.00 0.94 0.78 0.50	Very limited Depth to hard bedrock Depth to saturated zone Cutbanks cave	1.00  1.00 0.10	Very limited Depth to bedrock Depth to saturated zone Droughty	1.00 0.94  0.39
60: Demasters-----	50	Very limited Slope Frost action	1.00  0.50	Very limited Slope Depth to hard bedrock Cutbanks cave	1.00  0.88 0.10	Very limited Slope	1.00
Snell-----	35	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00  1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.97  0.90 0.57
61: Dixiejett-----	35	Very limited Slope	1.00	Very limited Slope Cutbanks cave Depth to hard bedrock	1.00 1.00 0.93	Very limited Slope Gravel content Droughty Large stones content	1.00 0.38 0.32 0.08
Lickskillet-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 1.00  0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rockly-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 0.68 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00 0.68	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
62: Doublecreek-----	40	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
62: Flybow-----	30	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Gravel content Droughty Large stones content	1.00 1.00 1.00 1.00 0.08
Rock outcrop-----	15	Not rated		Not rated		Not rated	
63: Doublecreek-----	55	Somewhat limited Slope	0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Langrell-----	30	Somewhat limited Frost action Large stones content	0.50 0.18	Very limited Cutbanks cave Large stones content	1.00 0.18	Somewhat limited Gravel content Droughty	0.25 0.01
64: Doublecreek-----	45	Somewhat limited Slope	0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Phys-----	40	Somewhat limited Frost action Slope Large stones content	0.50 0.04 0.01	Very limited Cutbanks cave Slope Large stones content	1.00 0.04 0.01	Somewhat limited Slope	0.04
65: Downards-----	45	Very limited Slope Frost action Large stones content	1.00 0.50 0.44	Very limited Slope Large stones content Cutbanks cave	1.00 0.44 0.10	Very limited Slope Large stones content	1.00 0.32
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
66: Downards-----	50	Very limited Slope Frost action Large stones content	1.00 0.50 0.44	Very limited Slope Large stones content Cutbanks cave	1.00 0.44 0.10	Very limited Slope Large stones content	1.00 0.32
Emily-----	20	Very limited Slope Frost action Large stones content	1.00 0.50 0.04	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.04	Very limited Slope Large stones content	1.00 0.92
Sopher-----	20	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
67: Downwards-----	60	Very limited Slope Frost action Large stones content	1.00 0.50 0.44	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 0.44 0.32 0.10	Very limited Slope Large stones content	1.00 0.32
Klicker-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
68: Downwards-----	60	Very limited Slope Frost action Large stones content	1.00 0.50 0.44	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 0.44 0.32 0.10	Very limited Slope Large stones content	1.00 0.32
Klicker-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
69: Downeygulch-----	50	Somewhat limited Depth to hard bedrock Frost action Slope	0.90 0.50 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 1.00 0.01	Somewhat limited Depth to bedrock Gravel content Slope	0.90 0.08 0.01
Lowerbluff-----	35	Very limited Depth to hard bedrock Frost action Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.01 0.01
70: Downeygulch-----	55	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 0.90 0.08
Thirstygulch-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71: Eggleson-----	85	Somewhat limited Frost action Flooding Large stones content	0.50 0.40 0.01	Very limited Cutbanks cave Depth to saturated zone Large stones content	1.00 0.99 0.01	Somewhat limited Droughty Gravel content	0.97 0.08
72: Emily-----	55	Very limited Slope Frost action Large stones content	1.00 0.50 0.04	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.04	Very limited Slope Large stones content	1.00 0.92
Wolot-----	30	Very limited Slope Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
73: Endoaquolls, mesic--	85	Very limited Depth to saturated zone Shrink-swell Frost action Large stones content	0.99 0.50 0.50 0.47	Very limited Depth to saturated zone Cutbanks cave Large stones content	1.00 1.00 0.47	Very limited Depth to saturated zone	0.99
74: Ferguson-----	85	Somewhat limited Frost action Slope Large stones content	0.50 0.04 0.01	Very limited Cutbanks cave Slope Large stones content	1.00 0.04 0.01	Somewhat limited Slope	0.04
75: Ferguson-----	85	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.01	Very limited Slope	1.00
76: Ferguson-----	85	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.01	Very limited Slope	1.00
77: Ferguson-----	85	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.01	Very limited Slope	1.00
78: Ferguson-----	85	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.01	Very limited Slope	1.00



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79: Flybow-----	40	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Gravel content Droughty Large stones content	1.00 1.00 1.00 1.00 0.08
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
80: Flybow-----	40	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Gravel content Droughty Large stones content	1.00 1.00 1.00 1.00 0.08
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
81: Flycreek-----	65	Very limited Frost action Shrink-swell Low strength Depth to hard bedrock Slope	1.00 1.00 1.00 0.10 0.10	Very limited Depth to hard bedrock Cutbanks cave Slope Too clayey	1.00 1.00 0.04 0.03	Somewhat limited Depth to bedrock Slope	0.10 0.04
Flyvalley-----	20	Very limited Depth to hard bedrock Frost action Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Depth to bedrock Slope	1.00 0.04
82: Freels-----	85	Somewhat limited Frost action Flooding	0.50 0.40	Somewhat limited Depth to saturated zone Cutbanks cave	0.61 0.10	Not limited	
83: Geisercreek-----	85	Very limited Slope Frost action Low strength Shrink-swell	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.02	Very limited Slope	1.00
84: Gelsinger-----	85	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Too clayey Cutbanks cave	0.12 0.10	Not limited	
85: Gelsinger-----	85	Very limited Low strength Slope Shrink-swell	1.00 0.63 0.50	Somewhat limited Slope Too clayey Cutbanks cave	0.63 0.12 0.10	Somewhat limited Slope	0.63

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86: Getaway-----	85	Very limited Slope Shrink-swell  Frost action Large stones content	1.00  0.50  0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00  0.61  0.18 0.10	Very limited Slope Large stones content	1.00  0.32
87: Getaway-----	85	Very limited Slope Shrink-swell  Frost action Large stones content	1.00  0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00  0.61  0.18 0.10	Very limited Slope Large stones content	1.00  0.32
88: Getaway-----	45	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61  0.18 0.10	Very limited Slope Large stones content	1.00  0.32
Anatone-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00  1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
89: Getaway-----	50	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61  0.18 0.10	Very limited Slope Large stones content	1.00  0.32
Harlow-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00  1.00 1.00 1.00 0.01
90: Getaway-----	50	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61  0.18 0.10	Very limited Slope Large stones content	1.00  0.32

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
90: Harlow-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
91: Getaway-----	40	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
Harlow-----	30	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
92: Getaway-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
Linecreek-----	30	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
93: Getaway-----	50	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.26	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.26 0.10	Very limited Slope Large stones content	1.00 0.92
Snell-----	35	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.97 0.90 0.57

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
94: Gwin-----	55	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content	1.00 1.00 0.50 0.47	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.47 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 0.92 0.08
Kettenbach-----	20	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.74 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
Rock outcrop-----	10	Not rated		Not rated		Not rated	
95: Gwin-----	55	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content	1.00 1.00 0.50 0.47	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.47 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 0.92 0.08
Kettenbach-----	20	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.74 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
Rock outcrop-----	10	Not rated		Not rated		Not rated	
96: Gwin-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content	1.00 1.00 0.50 0.47	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.47 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 0.92 0.08
Klickson-----	30	Very limited Slope Large stones content Shrink-swell Frost action	1.00 0.85 0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00 0.85 0.10	Very limited Slope Gravel content Large stones content	1.00 0.92 0.08
Kettenbach-----	20	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.74 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97: Gwinly-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00  1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Kettenbach-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00  0.90 0.74 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.74 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
Rock outcrop-----	10	Not rated		Not rated		Not rated	
98: Gwinly-----	40	Very limited Depth to hard bedrock Shrink-swell Slope Low strength Large stones content	1.00  1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.99 0.10	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 1.00
Mallory-----	35	Very limited Shrink-swell Slope Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00  1.00 0.93 0.12 0.10	Very limited Large stones content Slope Depth to bedrock Droughty	1.00  1.00 0.80 0.78
99: Gwinly-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00  1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Mallory-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00  1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
100: Gwinly-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00  1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
100: Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Kettenbach-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.74 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
101: Gwinly-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Kettenbach-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.74 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
102: Gwinly-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
102: Kettenbach-----	25	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell	1.00 0.90 0.74 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.74 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.65
103: Gwinly-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Rock outcrop-----	25	Not rated		Not rated		Not rated	
104: Gwinly-----	50	Very limited Depth to hard bedrock Shrink-swell Low strength Large stones content Frost action	1.00 1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 0.99 0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
Rockly-----	35	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.68 0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Droughty Large stones content Slope	1.00 1.00 1.00 0.04
105: Gwinly-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rockly-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.68 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
106: Gwinly-----	60	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00  1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.99 0.10	Very limited Depth to bedrock Slope content Droughty	1.00 1.00  1.00
Sopher-----	25	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
107: Gwinly-----	55	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00  1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Sopher-----	25	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
Rock outcrop-----	10	Not rated		Not rated		Not rated	
108: Hapludolls, frigid--	35	Somewhat limited Frost action Flooding	0.50 0.40	Very limited Cutbanks cave Depth to saturated zone	1.00 0.99	Somewhat limited Large stones content	0.01
Endoaquolls, frigid	30	Very limited Depth to saturated zone Frost action Flooding Large stones content	1.00  1.00 1.00 0.85	Very limited Depth to saturated zone Large stones content Flooding Cutbanks cave	1.00  0.85 0.60 0.10	Very limited Depth to saturated zone Flooding	1.00  0.60
Endoaquents, frigid	20	Very limited Depth to saturated zone Flooding Large stones content Frost action	1.00  1.00 0.53 0.50	Very limited Depth to saturated zone Cutbanks cave Flooding Large stones content	1.00  1.00 0.60 0.53	Very limited Depth to saturated zone Flooding Gravel content Large stones content	1.00  0.60 0.38 0.08
109: Harl-----	40	Very limited Slope Large stones content Frost action	1.00 0.55 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.55	Very limited Slope Gravel content Large stones content	1.00 0.92 0.54



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
109: Anatone-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
110: Harl-----	45	Very limited Slope Large stones content Frost action	1.00 0.55 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.55	Very limited Slope Gravel content Large stones content	1.00 0.92 0.54
Anatone-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
111: Harl-----	45	Very limited Slope Large stones content Frost action	1.00 0.55 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.55	Very limited Slope Gravel content Large stones content	1.00 0.92 0.54
Getaway-----	40	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
112: Harl-----	50	Very limited Slope Large stones content Frost action	1.00 0.55 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.55	Very limited Slope Gravel content Large stones content	1.00 0.92 0.54
Limberjim-----	25	Very limited Slope Frost action Shrink-swell Large stones content	1.00 1.00 0.50 0.05	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.99 0.05	Very limited Slope	1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
113: Harlow-----	60	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action Slope	1.00 1.00 0.61 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 0.61 0.10 0.04	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
113: Bocker-----	25	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00  0.99  0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99  0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00  1.00 0.04
114: Harlow-----	60	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Bocker-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
115: Harlow-----	45	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Bocker-----	40	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
116: Harlow-----	50	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action Slope	1.00  1.00 0.61 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00  0.61 0.10 0.04	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	1.00 1.00 1.00  0.04 0.01
Bocker-----	35	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00  0.99 0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00  0.99 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00  1.00 0.04

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
117: Harlow-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Bocker-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00  1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
118: Harlow-----	40	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action Slope	1.00  1.00 0.61 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00  0.61 0.10 0.04	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
Imnaha-----	35	Somewhat limited Depth to hard bedrock Frost action Slope	0.90  0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  1.00 0.04	Somewhat limited Depth to bedrock Large stones content Slope	0.90 0.08 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	
119: Harlow-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Imnaha-----	35	Very limited Slope Depth to hard bedrock Frost action	1.00  0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
120: Harlow-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120: Imnaha-----	35	Very limited Slope Depth to hard bedrock Frost action	1.00  0.90  0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
121: Harlow-----	50	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Klicker-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00  0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
122: Harlow-----	50	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Klicker-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00  0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
123: Harlow-----	35	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action Slope	1.00  1.00 0.61 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00  0.61 0.10 0.04	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
Snell-----	25	Very limited Shrink-swell Large stones content Low strength Depth to hard bedrock Frost action	1.00 1.00 1.00 0.90 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 1.00 0.10 0.04	Very limited Large stones content Depth to bedrock Droughty Slope	1.00 0.90 0.57 0.04

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
123: Imnaha-----	25	Somewhat limited Depth to hard bedrock Frost action Slope	0.90  0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  1.00 0.04	Somewhat limited Depth to bedrock Large stones content Slope	0.90 0.08  0.04
124: Harlow-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Snell-----	25	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00  0.90 0.57
Imnaha-----	25	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
125: Harlow-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Snell-----	25	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00  0.90 0.57
Imnaha-----	25	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
126: Harlow-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
126: Snell-----	25	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Rock outcrop-----	25	Not rated		Not rated		Not rated	
127: Harlow-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Tamarackcanyon-----	25	Very limited Slope Shrink-swell Frost action Large stones content Low strength	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.37 0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01
Linecreek-----	20	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
128: Harlow-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Tamarackcanyon-----	25	Very limited Slope Shrink-swell Frost action Large stones content Low strength	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.37 0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01
Olot-----	20	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.06 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
129: Harlow-----	50	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Threebuck-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.35	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content Too clayey	1.00 1.00 0.71 0.35 0.03	Very limited Slope	1.00
130: Hershal-----	85	Very limited Frost action Flooding Depth to saturated zone	1.00 1.00 0.99	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Flooding	0.99 0.60
131: Hershal-----	50	Very limited Frost action Flooding Depth to saturated zone	1.00 1.00 0.99	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Flooding	0.99 0.60
Voats-----	35	Very limited Flooding Large stones content	1.00 0.12	Very limited Cutbanks cave Flooding Depth to saturated zone Large stones content	1.00 0.60 0.24 0.12	Somewhat limited Flooding Droughty	0.60 0.22
132: Hershal-----	35	Very limited Frost action Flooding Depth to saturated zone	1.00 1.00 0.99	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60	Very limited Depth to saturated zone Flooding	0.99 0.60
Voats-----	30	Very limited Flooding Large stones content	1.00 0.12	Very limited Cutbanks cave Flooding Depth to saturated zone Large stones content	1.00 0.60 0.24 0.12	Somewhat limited Flooding Droughty	0.60 0.22
Veazie-----	20	Very limited Flooding Frost action	1.00 0.50	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.60 0.24	Somewhat limited Flooding	0.60

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
133: Howmeadows-----	50	Very limited Depth to saturated zone Frost action Shrink-swell Low strength Depth to hard bedrock	1.00  1.00 1.00 1.00 0.79	Very limited Depth to hard bedrock Depth to saturated zone Cutbanks cave Too clayey	1.00  1.00 1.00 0.03	Very limited Depth to saturated zone Depth to bedrock Droughty	1.00  0.80 0.03
Wilkins-----	35	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 0.50	Somewhat limited Depth to saturated zone	0.94
134: Hurwal-----	90	Somewhat limited Shrink-swell Frost action Low strength	0.50 0.50 0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
135: Hurwal-----	90	Somewhat limited Slope Shrink-swell Frost action Low strength	0.63 0.50 0.50 0.22	Somewhat limited Slope Cutbanks cave	0.63 0.10	Somewhat limited Slope	0.63
136: Hurwal, deep-----	85	Very limited Slope Shrink-swell Frost action Low strength	1.00 0.50 0.50 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock	1.00 0.10 0.01	Very limited Slope	1.00
137: Hurwal, deep-----	85	Very limited Slope Shrink-swell Frost action Low strength	1.00 0.50 0.50 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock	1.00 0.10 0.01	Very limited Slope	1.00
138: Hurwal-----	90	Somewhat limited Shrink-swell Frost action Low strength	0.50 0.50 0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
139: Hurwal-----	90	Somewhat limited Slope Shrink-swell Frost action Low strength	0.63 0.50 0.50 0.22	Somewhat limited Slope Cutbanks cave	0.63 0.10	Somewhat limited Slope	0.63
140: Hurwal-----	90	Very limited Slope Shrink-swell Frost action Low strength	1.00 0.50 0.50 0.22	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
141: Imnaha-----	55	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
141: Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
142: Imnaha-----	35	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Imhaha, moist-----	30	Very limited Slope Depth to hard bedrock Frost action Large stones content	1.00 0.90 0.50 0.01	Very limited Depth to hard bedrock Slope Cutbanks cave Large stones content	1.00 1.00 1.00 0.01	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.54
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
143: Imnaha-----	40	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Bocker-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Clearline-----	20	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.08 0.01	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
144: Imnaha-----	45	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Cherrycreek-----	30	Very limited Slope Large stones content Frost action	1.00 1.00 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
144: Anatone-----	15	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00  1.00 1.00  0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
145: Imnaha-----	40	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Clearline-----	30	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.08 0.01	Very limited Slope Large stones content Gravel content	1.00 0.32 0.26
Rock outcrop-----	15	Not rated		Not rated		Not rated	
146: Imnaha-----	45	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Cherrycreek-----	20	Very limited Slope Large stones content Frost action	1.00 1.00 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
147: Josset-----	85	Very limited Flooding Frost action	1.00 0.50	Very limited Cutbanks cave Depth to saturated zone Flooding	1.00 0.95 0.60	Somewhat limited Flooding	0.60
148: Kahler-----	50	Very limited Slope Low strength Shrink-swell Frost action	1.00 0.78 0.50 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope	1.00
Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
149: Kahler-----	40	Very limited Slope Low strength Shrink-swell Frost action	1.00 0.78 0.50 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope	1.00
Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
150: Kahler-----	35	Very limited Slope Low strength Shrink-swell Frost action	1.00 0.78 0.50 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope	1.00
Linecreek-----	30	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Getaway-----	20	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
151: Kahler-----	35	Very limited Slope Low strength Shrink-swell Frost action	1.00 0.78 0.50 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope	1.00
Linecreek-----	35	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Getaway-----	15	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
152: Klicker-----	85	Somewhat limited Depth to hard bedrock Large stones content Shrink-swell Frost action Slope	0.90 0.72 0.50 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 0.72 0.10 0.04	Very limited Large stones content Depth to bedrock Droughty Slope	0.99 0.90 0.46 0.04

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
153: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
154: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
155: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
156: Klicker-----	85	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
157: Klicker-----	50	Somewhat limited Depth to hard bedrock Large stones content Shrink-swell Frost action Slope	0.90 0.72 0.50 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 0.72 0.10 0.04	Very limited Large stones content Depth to bedrock Droughty Slope	0.99 0.90 0.46 0.04
Anatone-----	35	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
158: Klicker-----	50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
158: Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00 1.00
159: Klicker-----	50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00 1.00
160: Klicker-----	35	Somewhat limited Depth to hard bedrock Large stones content Shrink-swell Frost action Slope	0.90 0.72 0.50 0.50 0.01	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 0.72 0.10 0.01	Very limited Large stones content Depth to bedrock Droughty Slope	0.99 0.90 0.46 0.01
Fivebit-----	30	Very limited Depth to hard bedrock Frost action Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01	Very limited Depth to bedrock Droughty Gravel content Slope	1.00 1.00 1.00 0.01
Anatone-----	20	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 1.00 0.50 0.01	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 1.00 0.10 0.01	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
161: Klicker-----	35	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
Fivebit-----	30	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty Gravel content	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
161: Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	 1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	 1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	 1.00 1.00 1.00 1.00 1.00
162: Klicker-----	50	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	 1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	 1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	 1.00 0.99 0.90 0.46
Harlow-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	 1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	 1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	 1.00 1.00 1.00 1.00 0.01
163: Klicker-----	40	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	 1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	 1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	 1.00 0.99 0.90 0.46
Kamela-----	30	Very limited Slope Depth to hard bedrock Frost action Large stones content	 1.00 0.97 0.50 0.18	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	 1.00 1.00 0.18 0.10	Very limited Slope Depth to bedrock Droughty Large stones content	 1.00 0.97 0.54 0.08
Fivebit-----	15	Very limited Depth to hard bedrock Slope Frost action	 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	 1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty Gravel content	 1.00 1.00 1.00 1.00
164: Klicker-----	55	Very limited Slope Depth to hard bedrock Shrink-swell Frost action Large stones content	 1.00 0.90 0.50 0.50 0.44	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	 1.00 1.00 0.44 0.10	Very limited Slope Depth to bedrock Droughty	 1.00 0.90 0.38
Olot-----	30	Very limited Slope Frost action Depth to hard bedrock	 1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	 1.00 1.00 0.10	Very limited Slope Depth to bedrock Large stones content	 1.00 0.06 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
165: Klicker-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Frost action Large stones content	1.00 0.90 0.50 0.50 0.44	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.44 0.10	Very limited Slope Depth to bedrock Droughty Gravel content	1.00 0.90 0.38 0.08
Thirstygulch-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
166: Klicker-----	35	Very limited Slope Depth to hard bedrock Shrink-swell Frost action Large stones content	1.00 0.90 0.50 0.50 0.44	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.44 0.10	Very limited Slope Depth to bedrock Droughty Gravel content	1.00 0.90 0.38 0.08
Thirstygulch-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
167: Klicker-----	40	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00 0.90 0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.72 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 0.99 0.90 0.46
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
167: Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
168: Klickson-----	35	Very limited Slope Large stones content Shrink-swell Frost action	1.00 0.85 0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00 0.85 0.10	Very limited Slope Gravel content Large stones content	1.00 0.92 0.08
Anatone-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Larabee-----	25	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00 0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.06
169: Klickson-----	35	Very limited Slope Large stones content Shrink-swell Frost action	1.00 0.85 0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00 0.85 0.10	Very limited Slope Gravel content Large stones content	1.00 0.92 0.08
Anatone-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Larabee-----	25	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00 0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.06
170: Klickson-----	60	Very limited Slope Large stones content Shrink-swell Frost action	1.00 0.85 0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00 0.85 0.10	Very limited Slope Gravel content Large stones content	1.00 0.92 0.08
Larabee-----	25	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00 0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.06



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171: Klickson-----	35	Very limited Slope Large stones content Shrink-swell Frost action	1.00  0.85  0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00  0.85  0.10	Very limited Slope Gravel content Large stones content	1.00  0.92  0.08
Larabee-----	30	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00  0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock	1.00  0.06
Volstead-----	20	Very limited Slope Low strength Shrink-swell Frost action	1.00  1.00 0.50 0.50	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00  1.00 0.61  0.02	Very limited Slope	1.00
172: Langrell-----	85	Somewhat limited Frost action Large stones content	0.50  0.18	Very limited Cutbanks cave Large stones content	1.00  0.18	Somewhat limited Gravel content Droughty	0.25  0.01
173: Langrell-----	50	Somewhat limited Frost action Large stones content	0.50  0.18	Very limited Cutbanks cave Large stones content	1.00  0.18	Somewhat limited Gravel content Droughty	0.25  0.01
Snow-----	35	Somewhat limited Low strength	0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
174: Larabee-----	35	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00  0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock	1.00  0.06
Getaway-----	30	Very limited Slope Shrink-swell Frost action Large stones content	1.00  0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00  0.61  0.18 0.10	Very limited Slope Large stones content	1.00  0.32
Klickson-----	20	Very limited Slope Large stones content Shrink-swell Frost action	1.00  0.85  0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00  0.85  0.10	Very limited Slope Gravel content Large stones content	1.00  0.92  0.08
175: Larabee-----	35	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00  0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock	1.00  0.06

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
175: Klickson-----	30	Very limited Slope Large stones content Shrink-swell Frost action	1.00  0.85  0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00  0.85  0.10	Very limited Slope Gravel content Large stones content	1.00  0.92 0.08
Volstead-----	20	Very limited Slope Low strength Shrink-swell Frost action	1.00  1.00 0.50 0.50	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00  1.00 0.61  0.02	Very limited Slope	1.00
176: Larabee-----	35	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00  0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00   1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.06
Klickson-----	30	Very limited Slope Large stones content Shrink-swell Frost action	1.00  0.85  0.50 0.50	Very limited Slope Large stones content Cutbanks cave	1.00  0.85  0.10	Very limited Slope Gravel content Large stones content	1.00  0.92 0.08
Volstead-----	20	Very limited Slope Low strength Shrink-swell Frost action	1.00  1.00 0.50 0.50	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00  1.00 0.61  0.02	Very limited Slope	1.00
177: Larabee-----	45	Somewhat limited Shrink-swell Frost action Depth to hard bedrock Slope	0.50  0.50 0.06  0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00   1.00 0.01	Somewhat limited Depth to bedrock Slope	0.06 0.01
Melhorn-----	40	Somewhat limited Frost action Slope	0.50  0.01	Somewhat limited Cutbanks cave Slope	0.10  0.01	Somewhat limited Slope	0.01
178: Larabee-----	45	Very limited Slope Shrink-swell Frost action Depth to hard bedrock	1.00  0.50 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00   1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.06
Volstead-----	40	Very limited Slope Low strength Shrink-swell Frost action	1.00  1.00 0.50 0.50	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00  1.00 0.61  0.02	Very limited Slope	1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
179: Laufer-----	50	Very limited Depth to hard bedrock Shrink-swell Large stones content Slope	1.00  1.00 0.96  0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00  0.96  0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00  1.00 0.04
Thiessen-----	35	Somewhat limited Shrink-swell Frost action Large stones content Depth to hard bedrock Slope	0.50 0.50 0.18  0.15 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope Too clayey	1.00  0.18  0.10 0.04 0.02	Very limited Large stones content Droughty Depth to bedrock Slope Gravel content	0.99  0.58 0.16 0.04 0.03
180: Laufer-----	50	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content	1.00  1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.96 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00 1.00
Thiessen-----	35	Very limited Slope Shrink-swell Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.50 0.18  0.15	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave Too clayey	1.00  1.00 0.18  0.10 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99  0.58 0.16 0.03
181: Laufer-----	45	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content	1.00  1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.96 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00 1.00
Thiessen-----	40	Very limited Slope Shrink-swell Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.50 0.18  0.15	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave Too clayey	1.00  1.00 0.18  0.10 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99  0.58 0.16 0.03
182: Laufer-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content	1.00  1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.96 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
182: Thiessen-----	30	Very limited Slope Shrink-swell Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.50 0.18 0.15	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave Too clayey	1.00 1.00 0.18 0.10 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03
Rock outcrop-----	15	Not rated		Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey Large stones content	1.00 1.00 0.88 0.02 0.01	Very limited Slope Large stones content	1.00 0.08
Lawyer-----	25	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey Large stones content	1.00 1.00 0.88 0.02 0.01	Very limited Slope	1.00
Gwinly-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Low strength	1.00 1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
184: Lickskillet-----	40	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Dixiejett-----	25	Very limited Slope	1.00	Very limited Slope Cutbanks cave Depth to hard bedrock	1.00 1.00 0.93	Very limited Slope Gravel content Droughty Large stones content	1.00 0.38 0.32 0.08
Rock outcrop-----	20	Not rated		Not rated		Not rated	
185: Lickskillet-----	40	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
185: Doublecreek-----	25	Somewhat limited Slope	0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Rockly-----	20	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.68 0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Droughty Large stones content Slope	1.00 1.00 1.00 0.04
186: Lickskillet-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Rockly-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.68 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
187: Limberjim-----	85	Very limited Frost action Shrink-swell Large stones content Slope	1.00 0.50 0.05 0.04	Very limited Cutbanks cave Depth to hard bedrock Large stones content Slope	1.00 0.99 0.05 0.04	Somewhat limited Slope	0.04
188: Limberjim-----	50	Very limited Slope Frost action Shrink-swell Large stones content	1.00 1.00 0.50 0.05	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.99 0.05	Very limited Slope	1.00
Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
189: Limberjim-----	60	Very limited Slope Frost action Shrink-swell Large stones content	1.00 1.00 0.50 0.05	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.99 0.05	Very limited Slope	1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
189: Syrupcreek-----	25	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.64	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.65
190: Limberjim-----	70	Very limited Slope Frost action Shrink-swell Large stones content	1.00 1.00 0.50 0.05	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content	1.00 1.00 0.99 0.05	Very limited Slope	1.00
Syrupcreek-----	15	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.64	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.65
191: Limberjim-----	45	Very limited Frost action Shrink-swell Large stones content Slope	1.00 0.50 0.05 0.01	Very limited Cutbanks cave Depth to hard bedrock Large stones content Slope	1.00 0.99 0.05 0.01	Somewhat limited Slope	0.01
Tamara-----	40	Very limited Frost action Slope	1.00 0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01	Somewhat limited Slope	0.01
192: Linecreek-----	55	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Getaway-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
193: Lookingglass-----	85	Very limited Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 0.50 0.03	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 0.10 0.03	Somewhat limited Depth to saturated zone	0.03
194: Lookingglass-----	85	Very limited Low strength Shrink-swell Slope Frost action Depth to saturated zone	1.00 1.00 0.63 0.50 0.03	Very limited Depth to saturated zone Slope Cutbanks cave Too clayey	1.00 0.63 0.10 0.03	Somewhat limited Slope Depth to saturated zone	0.63 0.03

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
195: Lookingglass, stony	85	Very limited Low strength Shrink-swell Frost action Slope Depth to saturated zone	1.00 1.00 0.50 0.04 0.03	Very limited Depth to saturated zone Cutbanks cave Slope Too clayey	1.00 0.10 0.04 0.03	Very limited Large stones content Slope Depth to saturated zone	1.00 0.04 0.03
196: Lookingglass, cobbly	60	Very limited Slope Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 1.00 0.50 0.03	Very limited Slope Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 0.10 0.03	Very limited Slope Large stones content Depth to saturated zone	1.00 0.68 0.03
Lookingglass-----	25	Very limited Low strength Shrink-swell Frost action Slope Depth to saturated zone	1.00 1.00 0.50 0.04 0.03	Very limited Depth to saturated zone Cutbanks cave Slope Too clayey	1.00 0.10 0.04 0.03	Somewhat limited Slope Depth to saturated zone	0.04 0.03
197: Lookingglass-----	65	Very limited Low strength Shrink-swell Frost action Slope Depth to saturated zone	1.00 1.00 0.50 0.04 0.03	Very limited Depth to saturated zone Cutbanks cave Slope Too clayey	1.00 0.10 0.04 0.03	Somewhat limited Slope Depth to saturated zone	0.04 0.03
Sopher-----	20	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
198: Lookingglass-----	65	Very limited Low strength Shrink-swell Frost action Slope Depth to saturated zone	1.00 1.00 0.50 0.04 0.03	Very limited Depth to saturated zone Cutbanks cave Slope Too clayey	1.00 0.10 0.04 0.03	Somewhat limited Slope Depth to saturated zone	0.04 0.03
Sopher-----	20	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
199: Lostine-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
200: Mallory-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
200: Gwinly-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00  1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Lawyer-----	25	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey Large stones content	1.00 1.00 0.88 0.02 0.01	Very limited Slope Large stones content	1.00 0.08
201: Mallory-----	35	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Gwinly-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Lawyer-----	25	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey Large stones content	1.00 1.00 0.88 0.02 0.01	Very limited Slope Large stones content	1.00 0.08
202: Mallory-----	40	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock Frost action	1.00 1.00 0.93 0.79 0.50	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.93 0.12 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.80 0.78
Lawyer-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.01	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey Large stones content	1.00 1.00 0.88 0.02 0.01	Very limited Slope Large stones content	1.00 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
203: Matheny-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.43	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.88 0.43 0.10	Very limited Slope	1.00
Linville-----	25	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Laufer-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content	1.00 1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.96 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
204: Matterhorn-----	85	Somewhat limited Large stones content	0.93	Very limited Cutbanks cave Large stones content	1.00 0.93	Somewhat limited Droughty Large stones content	0.99 0.01
205: Minam-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
206: Minam-----	85	Somewhat limited Slope Frost action	0.63 0.50	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Slope	0.63
207: Minam-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Gravel content	0.32
208: Minam-----	85	Somewhat limited Slope Frost action	0.63 0.50	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Slope Gravel content	0.63 0.32
209: Minam-----	90	Somewhat limited Frost action Slope	0.50 0.04	Very limited Cutbanks cave Slope	1.00 0.04	Somewhat limited Large stones content Slope	0.92 0.04
210: Minam-----	90	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Large stones content	0.92
211: Minam-----	90	Somewhat limited Slope Frost action	0.63 0.50	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Large stones content Slope	0.92 0.63
212: Minam-----	30	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Minam, gravelly----	20	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Gravel content	0.32

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
212: Endoaquepts-----	40	Very limited Depth to saturated zone Frost action Low strength	1.00 1.00 0.78	Very limited Depth to saturated zone Cutbanks cave	1.00 1.00	Very limited Depth to saturated zone	1.00
213: Minam, gravelly----	30	Somewhat limited Slope Frost action	0.63 0.50	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Slope Large stones content	0.63 0.01
Minam, stony-----	25	Somewhat limited Slope Frost action	0.63 0.50	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Large stones content Slope	0.92 0.63
Endoaquepts-----	35	Very limited Depth to saturated zone Frost action Low strength Slope	1.00 1.00 0.78 0.63	Very limited Depth to saturated zone Cutbanks cave Slope	1.00 1.00 0.63	Very limited Depth to saturated zone Slope Large stones content	1.00 0.63 0.03
214: Mippon-----	90	Somewhat limited Flooding Large stones content	0.40 0.03	Very limited Cutbanks cave Depth to saturated zone Large stones content	1.00 0.61 0.03	Somewhat limited Droughty	0.88
215: Mountemily-----	45	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content	1.00 0.32
Troutmeadows-----	40	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.42	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.42
216: Mountemily-----	45	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content	1.00 0.32
Troutmeadows-----	40	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.42	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.42
217: Mountemily-----	45	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content	1.00 0.32
Troutmeadows-----	40	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.42	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.42

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
218: Mountemily-----	35	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content	1.00 0.32
Troutmeadows-----	25	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.42	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.42
Anatone-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
219: Needhill-----	35	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave Depth to hard bedrock	1.00 1.00 0.18	Very limited Slope	1.00
Parsnip-----	25	Very limited Depth to hard bedrock Slope Low strength Shrink-swell Frost action	1.00 1.00 1.00 1.00 0.50 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Gravel content Droughty Large stones content	1.00 1.00 0.22 0.08 0.01
Bocker-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
220: Needhill-----	45	Somewhat limited Frost action Slope	0.50 0.01	Very limited Cutbanks cave Depth to hard bedrock Slope	1.00 0.18 0.01	Somewhat limited Slope	0.01
Zumwalt-----	40	Very limited Shrink-swell Low strength Frost action Depth to hard bedrock Slope	1.00 1.00 0.50 0.03 0.01	Very limited Depth to hard bedrock Too clayey Cutbanks cave Slope	1.00 0.88 0.10 0.01	Somewhat limited Depth to bedrock Slope	0.03 0.01
221: Olot-----	85	Somewhat limited Frost action Depth to hard bedrock Slope	0.50 0.06 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope Large stones content	0.06 0.04 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
222: Olot-----	85	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.06 0.01
223: Olot-----	50	Somewhat limited Frost action Depth to hard bedrock Slope	0.50 0.06 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope Large stones content	0.06 0.04 0.01
Anatone-----	35	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 1.00 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
224: Olot-----	50	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.06 0.01
Anatone-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
225: Parsnip-----	85	Very limited Depth to hard bedrock Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 0.08
226: Parsnip-----	55	Very limited Depth to hard bedrock Low strength Shrink-swell Frost action Slope	1.00 1.00 0.50 0.50 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01	Very limited Depth to bedrock Gravel content Droughty Large stones content Slope	1.00 0.22 0.08 0.01 0.01
Bocker-----	30	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.99 0.50 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
227: Phys-----	85	Somewhat limited Large stones content Frost action	0.87 0.50	Very limited Cutbanks cave Large stones content	1.00 0.87	Somewhat limited Large stones content	0.84

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
228: Phys-----	40	Somewhat limited Frost action Slope Large stones content	0.50 0.04 0.01	Very limited Cutbanks cave Slope Large stones content	1.00 0.04 0.01	Somewhat limited Gravel content Slope	0.08 0.04
Doublecreek-----	30	Somewhat limited Slope	0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Collegecreek-----	20	Somewhat limited Slope	0.04	Very limited Cutbanks cave Slope	1.00 0.04	Somewhat limited Slope	0.04
229: Phys-----	35	Very limited Slope Frost action Large stones content	1.00 0.50 0.01	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.01	Very limited Slope Gravel content	1.00 0.08
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Collegecreek-----	25	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope	1.00
230: Powwatka-----	85	Very limited Low strength Depth to hard bedrock Shrink-swell Frost action	1.00 0.90 0.50 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.90
231: Powwatka-----	85	Very limited Low strength Depth to hard bedrock Slope Shrink-swell Frost action	1.00 0.90 0.63 0.50 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.63 0.10	Somewhat limited Depth to bedrock Slope	0.90 0.63
232: Powwatka-----	85	Very limited Slope Low strength Depth to hard bedrock Shrink-swell Frost action	1.00 1.00 0.90 0.50 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.90
233: Powwatka-----	85	Very limited Slope Low strength Depth to hard bedrock Shrink-swell Frost action	1.00 1.00 0.90 0.50 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.90

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
234: Puzzlecreek-----	85	Very limited Slope Frost action Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.01	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 0.26 0.01
235: Ramo-----	85	Very limited Shrink-swell Low strength Frost action	1.00 1.00 0.50	Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Somewhat limited Large stones content	0.01
236: Ramo-----	85	Very limited Shrink-swell Low strength Slope Frost action	1.00 1.00 0.63 0.50	Somewhat limited Slope Cutbanks cave Too clayey	0.63 0.10 0.02	Somewhat limited Slope Large stones content	0.63 0.01
237: Ramo-----	85	Very limited Slope Shrink-swell Low strength Frost action	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 0.10 0.02	Very limited Slope Large stones content	1.00 0.01
238: Ramo-----	50	Very limited Shrink-swell Low strength Frost action Slope	1.00 1.00 0.50 0.04	Somewhat limited Cutbanks cave Slope Too clayey	0.10 0.04 0.02	Somewhat limited Slope Large stones content	0.04 0.01
Conley-----	35	Very limited Low strength Shrink-swell Frost action Depth to saturated zone Slope	1.00 1.00 0.50 0.19 0.04	Very limited Depth to saturated zone Cutbanks cave Too clayey Slope	1.00 1.00 0.12 0.04	Somewhat limited Depth to saturated zone Slope	0.19 0.04
239: Reavis-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
240: Redmount-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
241: Redmount-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
242: Redmount-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Gravel content	0.08
243: Redmount-----	50	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Cheval-----	35	Very limited Flooding Frost action Depth to saturated zone	1.00 0.50 0.19	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.19

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
244: Riverwash-----	80	Not rated		Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Fivebit-----	15	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty Gravel content	1.00 1.00 1.00 1.00
247: Rock outcrop-----	35	Not rated		Not rated		Not rated	
Anatone-----	30	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Imnaha-----	20	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
248: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
Imnaha-----	15	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
249: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
249: Cherrycreek-----	20	Very limited Slope Large stones content Frost action	1.00 1.00 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 1.00 0.18 0.10	Very limited Slope Large stones content Gravel content	1.00 1.00 0.20
250: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Linecreek-----	20	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
Anatone-----	15	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
251: Rock outcrop-----	45	Not rated		Not rated		Not rated	
Rockly-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.68 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
Dixiejett-----	20	Very limited Slope	1.00	Very limited Slope Cutbanks cave Depth to hard bedrock	1.00 1.00 0.93	Very limited Slope Gravel content Droughty Large stones content	1.00 0.38 0.32 0.08
252: Rockly-----	35	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00
Rock outcrop-----	30	Not rated		Not rated		Not rated	
Copperfield-----	20	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.23	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.23	Very limited Slope Large stones content	1.00 1.00
253: Rockly-----	35	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.68 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to bedrock Slope Droughty Large stones content	1.00 1.00 1.00 1.00



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
253: Rock outcrop-----	25	Not rated		Not rated		Not rated	
Lickskillet-----	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
254: Rondowa-----	90	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
255: Rondowa-----	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63		
256: Rondowa-----	90	Somewhat limited		Very limited		Very limited	
		Frost action	0.50	Cutbanks cave	1.00	Large stones content	0.99
		Large stones content	0.10	Large stones content	0.10	Slope	0.04
		Slope	0.04	Slope	0.04		
257: Rondowa-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Large stones content	0.99
		Large stones content	0.10	Large stones content	0.10		
258: Rondowa-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Large stones content	0.99
		Large stones content	0.10	Large stones content	0.10		
259: Rondowa-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Large stones content	0.99
		Large stones content	0.10	Large stones content	0.10		
260: Rondowa-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Large stones content	0.99
		Large stones content	0.10	Large stones content	0.10		
261: Rondowa-----	90	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Large stones content	0.92
		Large stones content	0.06	Large stones content	0.06	Slope	0.04
		Slope	0.04	Slope	0.04		
262: Rondowa-----	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Large stones content	0.92
		Large stones content	0.06	Large stones content	0.06		

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
263: Rondowa-----	90	Very limited Slope Frost action Large stones content	1.00 0.50 0.06	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.06	Very limited Slope Large stones content	1.00 0.92
264: Rondowa-----	90	Very limited Slope Frost action Large stones content	1.00 0.50 0.06	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.06	Very limited Slope Large stones content	1.00 0.92
265: Rondowa-----	90	Very limited Slope Frost action Large stones content	1.00 0.50 0.06	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.06	Very limited Slope Large stones content	1.00 0.92
266: Rubble land-----	70	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
267: Sag-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
268: Sag-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
269: Sag-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
270: Schrier-----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
271: Schrier-----	55	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Almota-----	30	Very limited Slope Depth to hard bedrock	1.00 0.01	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Large stones content Depth to bedrock	1.00 0.08 0.01
272: Schrier-----	50	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Almota-----	25	Very limited Slope Depth to hard bedrock	1.00 0.01	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Large stones content Depth to bedrock	1.00 0.08 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
273: Schuelke-----	55	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.37 0.20	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.37 0.10	Very limited Slope Large stones content Depth to bedrock	1.00 0.32 0.20
Schrier-----	15	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Rockly-----	15	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to bedrock Droughty Large stones content Slope	1.00 1.00 1.00 1.00
274: Silverlake-----	85	Somewhat limited Shrink-swell Frost action	0.50 0.50	Very limited Cutbanks cave Too clayey	1.00 0.02	Not limited	
275: Slicklog-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.07
276: Slicklog-----	50	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.07
Eastpine-----	35	Very limited Slope Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.13 0.01	Very limited Depth to hard bedrock Slope Cutbanks cave Large stones content	1.00 1.00 1.00 0.13	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.92 0.84 0.01 0.01
277: Slicklog-----	55	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.07
Eastpine-----	20	Very limited Slope Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.13 0.01	Very limited Depth to hard bedrock Slope Cutbanks cave Large stones content	1.00 1.00 1.00 0.13	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.92 0.84 0.01 0.01
Rock outcrop-----	10	Not rated		Not rated		Not rated	
278: Slicklog-----	50	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.32 0.07

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
278: Wintercanyon-----	25	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty Gravel content Large stones content	1.00 1.00 1.00 0.71 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
279: Snell-----	85	Very limited Shrink-swell Large stones content Low strength Depth to hard bedrock Frost action	1.00 1.00 1.00 0.90 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00 1.00 0.10	Somewhat limited Depth to bedrock Droughty	0.90 0.57
280: Snell-----	65	Very limited Shrink-swell Large stones content Low strength Depth to hard bedrock Frost action	1.00 1.00 1.00 0.90 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.04	Very limited Large stones content Depth to bedrock Droughty Slope	1.00 0.90 0.57 0.04
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action Slope	1.00 1.00 0.61 0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 0.61 0.10 0.04	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	1.00 1.00 1.00 0.04 0.01
281: Snell-----	60	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
282: Snell-----	50	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
282: Harlow-----	40	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
283: Snell-----	55	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	30	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
284: Snell-----	65	Very limited Shrink-swell Large stones content Low strength Depth to hard bedrock Frost action	1.00 1.00 1.00 0.90 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 1.00 0.10 0.01	Somewhat limited Depth to bedrock Droughty Slope	0.90 0.57 0.01
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Frost action Large stones content Slope	1.00 1.00 0.50 0.06 0.01	Very limited Depth to hard bedrock Cutbanks cave Large stones content Slope	1.00 0.10 0.06 0.01	Very limited Depth to bedrock Droughty Slope	1.00 0.99 0.01
285: Snell-----	35	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
285: Imnaha-----	25	Very limited Slope Depth to hard bedrock Frost action	1.00  0.90  0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
286: Snell-----	35	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Imnaha-----	25	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
287: Snell-----	40	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Harlow-----	30	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
288: Snell-----	35	Very limited Slope Shrink-swell Large stones content Low strength Depth to hard bedrock	1.00 1.00 1.00 1.00 0.90	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 1.00 0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00 1.00 0.90 0.57
Imnaha-----	25	Very limited Slope Depth to hard bedrock Frost action	1.00 0.90 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.90 0.08
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
289: Snow-----	85	Somewhat limited Low strength	0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
290: Sopher-----	85	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
291: Sopher-----	85	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
292: Sopher-----	60	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
Gwinly-----	25	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
293: Sopher-----	50	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
Gwinly-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
294: Sopher-----	50	Very limited Slope Shrink-swell Low strength	1.00 1.00 0.22	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.88 0.03	Very limited Slope Large stones content	1.00 0.68
Gwinly-----	35	Very limited Depth to hard bedrock Slope Shrink-swell Low strength Large stones content	1.00 1.00 1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.99 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
295: Sturgill-----	85	Very limited Depth to saturated zone Frost action Flooding	1.00  1.00 1.00	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00  0.60 0.10	Very limited Depth to saturated zone Flooding	1.00  0.60
296: Sturgill-----	45	Very limited Depth to saturated zone Frost action Flooding	1.00  1.00 1.00	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00  0.60 0.10	Very limited Depth to saturated zone Flooding	1.00  0.60
Eggleson-----	40	Somewhat limited Frost action Flooding Large stones content	 0.50 0.40 0.01	Very limited Cutbanks cave Depth to saturated zone Large stones content	 1.00 0.99 0.01	Somewhat limited Droughty Gravel content	 0.97 0.08
297: Sweitberg-----	85	Very limited Low strength Shrink-swell Frost action Depth to hard bedrock	 1.00 1.00 0.50 0.10	Very limited Depth to hard bedrock Too clayey Cutbanks cave	 1.00  0.28 0.10	Somewhat limited Depth to bedrock	 0.10
298: Sweitberg-----	85	Very limited Low strength Shrink-swell Slope Frost action Depth to hard bedrock	 1.00 1.00 0.63 0.50 0.10	Very limited Depth to hard bedrock Slope Too clayey Cutbanks cave	 1.00  0.63 0.28 0.10	Somewhat limited Slope Depth to bedrock	 0.63 0.10
299: Sweiting-----	85	Very limited Shrink-swell Low strength Frost action Depth to hard bedrock Slope	 1.00 1.00 0.50 0.29 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope Too clayey	 1.00  1.00 0.04 0.03	Somewhat limited Depth to bedrock Slope	 0.29 0.04
300: Sweiting-----	85	Very limited Slope Shrink-swell Low strength Frost action Depth to hard bedrock	 1.00 1.00 1.00 0.50 0.29	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	 1.00  1.00 1.00 0.03	Very limited Slope Depth to bedrock	 1.00 0.29
301: Sweiting-----	50	Very limited Shrink-swell Low strength Frost action Depth to hard bedrock Slope	 1.00 1.00 0.50 0.29 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope Too clayey	 1.00  1.00 0.04 0.03	Somewhat limited Depth to bedrock Slope	 0.29 0.04



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
301: Harlow-----	40	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action Slope	1.00  1.00 0.61  0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00  0.61  0.10 0.04	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	1.00 1.00 1.00  0.04 0.01
302: Sweiting-----	50	Very limited Slope Shrink-swell Low strength Frost action Depth to hard bedrock	1.00  1.00 1.00 0.50 0.29	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	1.00  1.00 1.00 0.03	Very limited Slope Depth to bedrock	1.00  0.29
Harlow-----	35	Very limited Depth to hard bedrock Slope Shrink-swell  Large stones content Frost action	1.00  1.00 1.00  0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61  0.10	Very limited Depth to bedrock Slope Droughty  Large stones content Gravel content	1.00 1.00 1.00  1.00 0.01
303: Sweiting-----	50	Very limited Slope Shrink-swell Low strength Frost action Depth to hard bedrock	1.00  1.00 1.00 0.50 0.29	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	1.00  1.00 1.00 0.03	Very limited Slope Depth to bedrock	1.00  0.29
Klicker-----	40	Very limited Slope Depth to hard bedrock Large stones content Shrink-swell Frost action	1.00  0.90  0.72 0.50 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.72  0.10	Very limited Slope Large stones content Depth to bedrock Droughty	1.00  0.99  0.90 0.46
304: Syrupcreek-----	85	Very limited Frost action Depth to hard bedrock Slope	1.00 0.64  0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  0.10 0.01	Somewhat limited Depth to bedrock Slope	0.65 0.01
305: Syrupcreek-----	60	Very limited Frost action Depth to hard bedrock Slope	1.00 0.64  0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  0.10 0.01	Somewhat limited Depth to bedrock Slope	0.65 0.01
Anatone-----	25	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00  1.00  0.50 0.01	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00  1.00  0.10 0.01	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00  1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
306: Syrupcreek-----	60	Very limited Frost action Depth to hard bedrock Slope	1.00 0.64 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.65 0.04
Lowerbluff-----	25	Very limited Depth to hard bedrock Frost action Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Depth to bedrock Slope Large stones content	1.00 0.04 0.01
307: Syrupcreek-----	55	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.64	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.65
Tamara-----	30	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
308: Syrupcreek-----	65	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.64	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.65
Tamara-----	20	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
309: Tamara-----	65	Very limited Frost action Slope	1.00 0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01	Somewhat limited Slope	0.01
Sherod-----	20	Very limited Depth to hard bedrock Frost action Depth to saturated zone Low strength Shrink-swell	1.00 1.00 0.94 0.78 0.50	Very limited Depth to hard bedrock Depth to saturated zone Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Depth to saturated zone Droughty	1.00 0.94 0.39
310: Tamara-----	45	Very limited Frost action Slope	1.00 0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01	Somewhat limited Slope	0.01
Syrupcreek-----	40	Very limited Frost action Depth to hard bedrock Slope	1.00 0.64 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01	Somewhat limited Depth to bedrock Slope	0.65 0.01
311: Tamarackcanyon-----	40	Very limited Slope Shrink-swell Frost action Large stones content Low strength	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 0.37 0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
311: Linecreek-----	25	Very limited Slope Large stones content Frost action	1.00  0.83  0.50	Very limited Slope Cutbanks cave Large stones content	1.00  1.00 0.83	Very limited Slope Large stones content Gravel content	1.00  1.00  0.75
Harlow-----	20	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61  0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00  0.01
312: Tamarackcanyon-----	65	Very limited Shrink-swell Frost action Large stones content Low strength Slope	1.00 0.50 0.37  0.22 0.04	Very limited Depth to hard bedrock Large stones content Too clayey Cutbanks cave Slope	1.00  0.37  0.12 0.10 0.04	Somewhat limited Slope Depth to bedrock	0.04 0.01
Lowerbluff-----	20	Very limited Depth to hard bedrock Frost action Slope	1.00  0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  0.10 0.04	Very limited Depth to bedrock Slope Large stones content	1.00 0.04 0.01
313: Tamarackcanyon-----	40	Very limited Slope Shrink-swell Frost action Large stones Low strength content	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00  1.00 0.37  0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01
Olot-----	25	Very limited Slope Frost action Depth to hard bedrock	1.00  0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.06 0.01
Harlow-----	20	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00  1.00 1.00 0.61  0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00  0.01
314: Tamarackcanyon-----	40	Very limited Slope Shrink-swell Frost action Large stones content Low strength	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00  1.00 0.37  0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
314: Olot-----	25	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.06 0.01
Harlow-----	20	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 1.00 0.01
315: Tannahill-----	35	Very limited Slope Large stones content Shrink-swell Frost action	1.00 0.99 0.50 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 0.99 0.61 0.10	Very limited Slope Large stones content Droughty Gravel content	1.00 0.92 0.12 0.01
Schrier-----	35	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope Large stones content Shrink-swell Frost action	1.00 0.99 0.50 0.50	Very limited Slope Large stones content Depth to hard bedrock Cutbanks cave	1.00 0.99 0.61 0.10	Very limited Slope Large stones content Droughty Gravel content	1.00 0.92 0.12 0.01
Schuelke-----	30	Very limited Slope Shrink-swell Large stones content Depth to hard bedrock	1.00 0.50 0.37 0.20	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.37 0.10	Very limited Slope Large stones content Depth to bedrock	1.00 0.32 0.20
Lickskillet-----	25	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
317: Thiessen-----	85	Very limited Slope Shrink-swell Frost action Large stones content Depth to hard bedrock	1.00 0.50 0.50 0.18 0.15	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave Too clayey	1.00 1.00 1.00 0.18 0.10 0.02	Very limited Slope Large stones content Droughty Depth to bedrock Gravel content	1.00 0.99 0.58 0.16 0.03

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
318: Threebuck-----	70	Somewhat limited Shrink-swell Frost action Large stones content Slope	 0.50 0.50 0.35 0.04	Very limited Cutbanks cave Depth to hard bedrock Large stones content Slope Too clayey	 1.00 0.71  0.35 0.04 0.03	Somewhat limited Slope	 0.04
Harlow-----	15	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action Slope	 1.00  1.00 0.61  0.50 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	 1.00  0.61 0.10 0.04	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	 1.00 1.00 1.00  0.04 0.01
319: Threebuck-----	35	Very limited Slope Shrink-swell Frost action Large stones content	 1.00 0.50 0.50 0.35	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content Too clayey	 1.00 1.00 0.71  0.35 0.03	Very limited Slope	 1.00
Linecreek-----	30	Very limited Slope Large stones content Frost action	 1.00 0.83  0.50	Very limited Slope Cutbanks cave Large stones content	 1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	 1.00 1.00 0.75
Harlow-----	20	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	 1.00  1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	 1.00  1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	 1.00 1.00 1.00 1.00 0.01
320: Threebuck-----	50	Very limited Slope Shrink-swell Frost action Large stones content	 1.00 0.50 0.50 0.35	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content Too clayey	 1.00 1.00 0.71  0.35 0.03	Very limited Slope	 1.00
Tamarackcanyon-----	35	Very limited Slope Shrink-swell Frost action Large stones content Low strength	 1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	 1.00  1.00 0.37 0.12 0.10	Very limited Slope Depth to bedrock	 1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
321: Threebuck-----	50	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.35	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content Too clayey	1.00 1.00 0.71 0.35 0.03	Very limited Slope	1.00
Tamarackcanyon-----	35	Very limited Slope Shrink-swell Frost action Large stones content Low strength	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 1.00 0.37 0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01
322: Threebuck-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.35	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content Too clayey	1.00 1.00 0.71 0.35 0.03	Very limited Slope	1.00
Tamarackcanyon-----	30	Very limited Slope Shrink-swell Frost action Large stones content Low strength	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 1.00 0.37 0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01
Harlow-----	20	Very limited Depth to hard bedrock Slope Shrink-swell Large stones content Frost action	1.00 1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 1.00 0.61 0.10	Very limited Depth to bedrock Slope Droughty Large stones content Gravel content	1.00 1.00 1.00 0.01
323: Threebuck-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.35	Very limited Slope Cutbanks cave Depth to hard bedrock Large stones content Too clayey	1.00 1.00 0.71 0.35 0.03	Very limited Slope	1.00
Tamarackcanyon-----	30	Very limited Slope Shrink-swell Frost action Large stones content Low strength	1.00 1.00 0.50 0.37 0.22	Very limited Depth to hard bedrock Slope Large stones content Too clayey Cutbanks cave	1.00 1.00 1.00 0.37 0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.01

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
323: Linecreek-----	20	Very limited Slope Large stones content Frost action	1.00 0.83 0.50	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.83	Very limited Slope Large stones content Gravel content	1.00 1.00 0.75
324: Tippett-----	70	Very limited Low strength Shrink-swell Frost action	1.00 1.00 0.50	Very limited Cutbanks cave Too clayey Depth to hard bedrock	1.00 0.50 0.32	Not limited	
Harlow-----	20	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action	1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.10	Very limited Depth to bedrock Large stones content Gravel content	1.00 1.00 0.01
325: Tippett-----	70	Very limited Low strength Shrink-swell Frost action	1.00 1.00 0.50	Very limited Cutbanks cave Too clayey Depth to hard bedrock	1.00 0.50 0.32	Not limited	
Zumwalt-----	20	Very limited Shrink-swell Low strength Frost action Depth to hard bedrock	1.00 1.00 0.50 0.03	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.88 0.10	Somewhat limited Depth to bedrock	0.03
326: Tolo-----	85	Very limited Frost action Low strength Shrink-swell Slope	1.00 1.00 0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
327: Tolo-----	85	Very limited Slope Frost action Low strength Shrink-swell	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
328: Tolo, fan-----	85	Very limited Frost action Low strength Slope	1.00 1.00 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
329: Tolo-----	50	Very limited Slope Frost action Low strength Shrink-swell	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Getaway-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
330: Tolo-----	50	Very limited Slope Frost action Low strength Shrink-swell	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Getaway-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
331: Tolo-----	50	Very limited Slope Frost action Low strength Shrink-swell	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Getaway-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
332: Tolo-----	50	Very limited Slope Frost action Low strength Shrink-swell	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Getaway-----	35	Very limited Slope Shrink-swell Frost action Large stones content	1.00 0.50 0.50 0.18	Very limited Slope Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.18 0.10	Very limited Slope Large stones content	1.00 0.32
333: Tolo-----	50	Very limited Frost action Low strength Shrink-swell Slope	1.00 1.00 0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Olot-----	35	Somewhat limited Frost action Depth to hard bedrock Slope	0.50 0.06 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope Large stones content	0.06 0.04 0.01
334: Tolo-----	55	Very limited Slope Frost action Low strength Shrink-swell	1.00 1.00 1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Olot-----	30	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.06 0.01



Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
335: Topper-----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
336: Topper-----	85	Somewhat limited Slope Frost action	0.63 0.50	Somewhat limited Slope Cutbanks cave	0.63 0.10	Somewhat limited Slope	0.63
337: Topper-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
338: Topper-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
339: Troutmeadows-----	65	Very limited Frost action Depth to hard bedrock Slope	1.00 0.42 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.42 0.04
Crawfish-----	20	Very limited Depth to hard bedrock Frost action Large stones content Slope	1.00 1.00 0.92 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.92 0.04	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.04
340: Tuckerdowns-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Gravel content	0.08
341: Tuckerdowns-----	85	Somewhat limited Slope Frost action	0.63 0.50	Very limited Cutbanks cave Slope	1.00 0.63	Somewhat limited Slope Gravel content	0.63 0.08
342: Tuckerdowns-----	85	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Gravel content	1.00 0.08
343: Vandamine-----	60	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.10	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.10
344: Vandamine-----	50	Very limited Slope Frost action	1.00 1.00	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope	1.00
Bordengulch-----	25	Very limited Slope Frost action Depth to hard bedrock	1.00 1.00 0.10	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.10

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
344: Rock outcrop-----	10	Not rated		Not rated		Not rated	
345: Veazie-----	85	Very limited Flooding Frost action	1.00 0.50	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.60 0.24	Somewhat limited Flooding	0.60
346: Voats-----	50	Very limited Flooding Large stones content	1.00 0.12	Very limited Cutbanks cave Flooding Depth to saturated zone Large stones content	1.00 0.60 0.24 0.12	Somewhat limited Flooding Droughty	0.60 0.22
Veazie-----	35	Very limited Flooding Frost action	1.00 0.50	Very limited Cutbanks cave Flooding Depth to saturated zone	1.00 0.60 0.24	Somewhat limited Flooding	0.60
347: Volstead-----	35	Very limited Low strength Shrink-swell Frost action Slope	1.00 0.50 0.50 0.01	Very limited Cutbanks cave Depth to hard bedrock Too clayey Slope	1.00 0.61 0.02 0.01	Somewhat limited Slope	0.01
Quirk-----	30	Very limited Low strength Shrink-swell Frost action Depth to hard bedrock Slope	1.00 1.00 0.50 0.03 0.03 0.01	Very limited Depth to hard bedrock Too clayey Cutbanks cave Slope	1.00 0.12 0.10 0.01	Somewhat limited Depth to bedrock Slope	0.03 0.01
Bocker-----	20	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.99 0.50 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Large stones content Droughty Slope	1.00 1.00 1.00 0.01
348: Volstead-----	35	Very limited Slope Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Cutbanks cave Depth to hard bedrock Too clayey	1.00 1.00 0.61 0.02	Very limited Slope	1.00
Quirk-----	30	Very limited Slope Low strength Shrink-swell Frost action Depth to hard bedrock	1.00 1.00 1.00 0.50 0.03	Very limited Depth to hard bedrock Slope Too clayey Cutbanks cave	1.00 1.00 1.00 0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.03

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
348: Bocker-----	20	Very limited Depth to hard bedrock Slope Large stones content Frost action	1.00 1.00 0.99 0.50	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to bedrock Slope Large stones content Droughty	1.00 1.00 1.00 1.00
349: Wallowa-----	50	Somewhat limited Depth to hard bedrock Frost action Slope	0.54 0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.54 0.04
Bocker-----	40	Very limited Depth to hard bedrock Large stones content Frost action	1.00 0.99 0.50	Very limited Depth to hard bedrock Large stones content	1.00 0.99	Very limited Depth to bedrock Large stones content Droughty	1.00 1.00 1.00
350: Watama-----	85	Somewhat limited Depth to hard bedrock Low strength Shrink-swell Frost action	0.84 0.78 0.50 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.84
351: Watama-----	85	Somewhat limited Depth to hard bedrock Low strength Slope Shrink-swell Frost action	0.84 0.78 0.63 0.50 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.63 0.10	Somewhat limited Depth to bedrock Slope	0.84 0.63
352: Watama-----	50	Somewhat limited Depth to hard bedrock Low strength Shrink-swell Frost action Slope	0.84 0.78 0.50 0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.84 0.04
Rockly-----	35	Very limited Depth to hard bedrock Large stones content Frost action Slope	1.00 0.68 0.50 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Droughty Large stones content Slope	1.00 1.00 1.00 0.04
353: Water-----	95	Not rated		Not rated		Not rated	
354: Wilkins-----	85	Very limited Frost action Flooding Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Cutbanks cave Flooding Too clayey	1.00 1.00 0.60 0.50	Somewhat limited Depth to saturated zone Flooding	0.94 0.60

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
355: Wilkins-----	55	Very limited Frost action Flooding Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Cutbanks cave Flooding Too clayey	1.00 1.00 0.60 0.50	Somewhat limited Depth to saturated zone Flooding	0.94 0.60
Feaginranch-----	30	Very limited Depth to saturated zone Frost action Flooding Shrink-swell Low strength	1.00 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Ponding Flooding Too clayey	1.00 1.00 1.00 0.60 0.02	Very limited Depth to saturated zone Ponding Flooding	1.00 1.00 0.60
356: Wolot-----	85	Very limited Low strength Shrink-swell Frost action Slope	1.00 0.50 0.50 0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01	Somewhat limited Slope	0.01
357: Zumwalt-----	65	Very limited Shrink-swell Low strength Frost action Depth to hard bedrock	1.00 1.00 0.50 0.03	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.88 0.10	Somewhat limited Depth to bedrock	0.03
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Large stones content Frost action	1.00 1.00 0.61 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.61 0.10	Very limited Depth to bedrock Droughty Large stones content Gravel content	1.00 1.00 1.00 0.01
358: Zumwalt-----	65	Very limited Shrink-swell Low strength Slope Frost action Depth to hard bedrock	1.00 1.00 0.63 0.50 0.03	Very limited Depth to hard bedrock Too clayey Slope Cutbanks cave	1.00 0.88 0.63 0.10	Somewhat limited Slope Depth to bedrock	0.63 0.03
Harlow-----	25	Very limited Depth to hard bedrock Shrink-swell Slope Large stones content Frost action	1.00 1.00 0.63 0.61 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 0.63 0.61 0.10	Very limited Depth to bedrock Droughty Large stones content Slope Gravel content	1.00 1.00 1.00 0.63 0.01
359: Zumwalt-----	65	Very limited Shrink-swell Low strength Frost action Slope Depth to hard bedrock	1.00 1.00 0.50 0.04 0.03	Very limited Depth to hard bedrock Too clayey Cutbanks cave Slope	1.00 0.88 0.10 0.04	Somewhat limited Slope Depth to bedrock	0.04 0.03

Table 12b.--Building Site Development (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
359: Harlow-----	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00			Droughty	1.00
		Large stones	0.61	Large stones	0.61	Large stones	1.00
		content		content		content	
		Frost action	0.50	Cutbanks cave	0.10	Slope	0.04
		Slope	0.04	Slope	0.04	Gravel content	0.01

Table 13a.--Sanitary Facilities (Part I)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Seepage Slope	1.00 1.00 0.68
2: Akerite-----	85	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.63	Very limited Slope Depth to saturated zone Seepage	1.00 1.00 1.00
3: Albee-----	45	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Anatone-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
4: Albee-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
5: Analulu-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Slicklog-----	30	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
Bluecanyon-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
6: Analulu-----	40	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Slicklog-----	35	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
7: Anatone-----	50	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Bocker-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
8: Anatone-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Bocker-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
9: Anatone-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Bocker-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
10: Anatone-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
10: Bocker-----	30	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Fivebit-----	20	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
11: Anatone-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Bocker-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Fivebit-----	20	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
12: Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Cherrycreek-----	30	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.63 0.50	Very limited Slope Seepage Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18
Imnaha-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
13: Anatone-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
13: Imnaha-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
14: Anatone-----	45	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Kamela-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 0.86 0.50
15: Anatone-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Klicker-----	30	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
16: Anatone-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Linecreek-----	25	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
17: Anatone-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
17: Olot-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
18: Anatone-----	45	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 0.79
Rock outcrop-----	25	Not rated		Not rated	
Clearline-----	15	Very limited Slope Seepage Depth to bedrock Large stones content	1.00 1.00 0.52 0.01	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.08
19: Anatone-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	25	Not rated		Not rated	
Fivebit-----	20	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
20: Anatone-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	25	Not rated		Not rated	
Imnaha-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
21: Balm-----	50	Very limited Depth to saturated zone Seepage Slow water movement Flooding	1.00 1.00 0.50 0.40	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.40

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
21: Catherine-----	40	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50
22: Bittercreek-----	65	Very limited Depth to saturated zone Seepage Filtering capacity Flooding	1.00 1.00 1.00 0.40	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.40
Mippon-----	20	Very limited Seepage Filtering capacity Depth to saturated zone Flooding Large stones content	1.00 1.00 0.99 0.40 0.03	Very limited Seepage Depth to saturated zone Flooding	1.00 0.71 0.40
23: Bocker-----	85	Very limited Depth to bedrock Large stones content	1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 0.68 0.01
24: Bocker-----	60	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Anatone-----	15	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	10	Not rated		Not rated	
25: Bocker-----	60	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Anatone-----	15	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	10	Not rated		Not rated	

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
26: Bocker-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Clearline-----	20	Very limited Slope Seepage Depth to bedrock Large stones content	1.00 1.00 0.52 0.01	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.08
Rock outcrop-----	20	Not rated		Not rated	
27: Bocker-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Imnaha-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
28: Bridgewater-----	90	Very limited Flooding Seepage Large stones content Slope	1.00 1.00 1.00 0.01	Very limited Flooding Large stones content Seepage Slope	1.00 1.00 1.00 1.00
29: Btree-----	45	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.99	Very limited Slope Seepage Depth to soft bedrock	1.00 1.00 0.96
Flycreek-----	40	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
30: Btree-----	45	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.99	Very limited Slope Seepage Depth to soft bedrock	1.00 1.00 0.96
Flycreek-----	40	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
31: Btree-----	30	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.99	Very limited Slope Seepage Depth to soft bedrock	1.00 1.00 0.96
Flycreek-----	30	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Anatone-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
32: Btree-----	30	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.99	Very limited Slope Seepage Depth to soft bedrock	1.00 1.00 0.96
Flycreek-----	30	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Anatone-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
33: Btree-----	40	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.99	Very limited Slope Seepage Depth to soft bedrock	1.00 1.00 0.96
Klicker-----	30	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
34: Bucketlake-----	85	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
35: Bucketlake-----	85	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 1.00
36: Buford-----	45	Very limited Slow water movement Depth to bedrock Slope	1.00 0.78 0.04	Very limited Slope Seepage Depth to hard bedrock	1.00 0.50 0.42
Anatone-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
37: Buford-----	45	Very limited Slow water movement Depth to bedrock Slope	1.00 0.78 0.04	Very limited Slope Seepage Depth to hard bedrock	1.00 0.50 0.42
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
38: Bunchpoint-----	85	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
39: Bunchpoint-----	45	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
40: Chard-----	90	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
41: Cherrycreek-----	50	Very limited Large stones content Depth to bedrock Slow water movement Slope	1.00 0.63 0.50 0.04	Very limited Seepage Slope Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
41: Imnaha-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
42: Cherrycreek-----	50	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.63 0.50	Very limited Slope Seepage Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18
Imnaha-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Imnaha, moist-----	15	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
43: Cherrycreek-----	40	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.63 0.50	Very limited Slope Seepage Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18
Imnaha-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.63 0.50	Very limited Slope Seepage Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18
Limberjim-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
45: Chesnimnus-----	85	Very limited Slow water movement Seepage	1.00 1.00	Very limited Seepage	1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
46: Chesnimnus-----	85	Very limited Slow water movement Seepage	1.00 1.00	Very limited Seepage	1.00
47: Cheval-----	85	Very limited Flooding Depth to saturated zone Seepage Slow water movement	1.00 1.00 1.00 0.50	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
48: Cloverland-----	90	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Somewhat limited Slope Seepage Depth to saturated zone	0.68 0.50 0.44
49: Cloverland-----	90	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.63	Very limited Slope Seepage Depth to saturated zone	1.00 0.50 0.44
50: Conley-----	90	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone Seepage	0.75 0.50
51: Conley-----	90	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone Slope Seepage	0.75 0.68 0.50
52: Copperfield-----	50	Very limited Slow water movement Slope Large stones content	1.00 1.00 0.23	Very limited Slope Large stones content Seepage	1.00 1.00 0.50
Thiessen-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.17
53: Copperfield-----	40	Very limited Slow water movement Slope Large stones content	1.00 1.00 0.23	Very limited Slope Large stones content Seepage	1.00 1.00 0.50



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
53: Thiessen-----	30	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.17
Rock outcrop-----	15	Not rated		Not rated	
54: Cowsly-----	90	Very limited Slow water movement Depth to saturated zone Depth to bedrock	1.00 1.00 0.78	Very limited Depth to saturated zone Slope Seepage Depth to hard bedrock	1.00 0.68 0.50 0.42
55: Cowsly-----	90	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 0.78 0.63	Very limited Slope Depth to saturated zone Seepage Depth to hard bedrock	1.00 1.00 0.50 0.42
56: Cowsly-----	85	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 0.78 0.04	Very limited Depth to saturated zone Slope Seepage Depth to hard bedrock	1.00 1.00 0.50 0.42
57: Cowsly, cobbly-----	60	Very limited Slow water movement Depth to saturated zone Slope Depth to bedrock	1.00 1.00 1.00 0.78	Very limited Slope Depth to saturated zone Seepage Depth to hard bedrock	1.00 1.00 0.50 0.42
Cowsly-----	25	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 0.78 0.04	Very limited Depth to saturated zone Slope Seepage Depth to hard bedrock	1.00 1.00 0.50 0.42
58: Cowsly, cobbly-----	60	Very limited Slow water movement Depth to saturated zone Slope Depth to bedrock	1.00 1.00 1.00 0.78	Very limited Slope Depth to saturated zone Seepage Depth to hard bedrock	1.00 1.00 0.50 0.42

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
58: Cowsly-----	25	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 0.78 0.04	Very limited Depth to saturated zone Slope Seepage Depth to hard bedrock	1.00 1.00 0.50 0.42
59: Cowsly-----	60	Very limited Slow water movement Depth to saturated zone Depth to bedrock Slope	1.00 1.00 0.78 0.04	Very limited Depth to saturated zone Slope Seepage Depth to hard bedrock	1.00 1.00 0.50 0.42
Howmeadows-----	15	Very limited Slow water movement Depth to bedrock Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to hard bedrock Depth to saturated zone	1.00 1.00
Sherod-----	15	Very limited Depth to bedrock Depth to saturated zone	1.00 1.00	Very limited Depth to hard bedrock Depth to saturated zone Large stones content	1.00 1.00 0.10
60: Demasters-----	50	Very limited Slope Depth to bedrock Slow water movement	1.00 0.96 0.50	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.50
Snell-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
61: Dixiejett-----	35	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.98	Very limited Slope Depth to hard bedrock	1.00 0.93
Lickskillet-----	30	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00
Rockly-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
62: Doublecreek-----	40	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Flybow-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
63: Doublecreek-----	55	Somewhat limited Slow water movement Slope	0.50 0.04	Very limited Seepage Slope	1.00 1.00
Langrell-----	30	Very limited Seepage Slow water movement Large stones content	1.00 0.50 0.18	Very limited Seepage	1.00
64: Doublecreek-----	45	Somewhat limited Slow water movement Slope	0.50 0.04	Very limited Seepage Slope	1.00 1.00
Phys-----	40	Very limited Seepage Slope Large stones content	1.00 0.04 0.01	Very limited Seepage Slope	1.00 1.00
65: Downards-----	45	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.44	Very limited Slope	1.00
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	20	Not rated		Not rated	
66: Downards-----	50	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.44	Very limited Slope	1.00
Emily-----	20	Very limited Slope Slow water movement Large stones content	1.00 0.50 0.04	Very limited Slope Seepage Large stones content	1.00 0.50 0.47

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
66: Sopher-----	20	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
67: Downards-----	60	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.73 0.44	Very limited Slope Depth to hard bedrock	1.00 0.32
Klicker-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
68: Downards-----	60	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.73 0.44	Very limited Slope Depth to hard bedrock	1.00 0.32
Klicker-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
69: Downeygulch-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Lowerbluff-----	35	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
70: Downeygulch-----	55	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Thirstygulch-----	30	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
71: Eggleston-----	85	Very limited Depth to saturated zone Seepage Filtering capacity Flooding Large stones content	1.00  1.00 1.00  0.40 0.01	Very limited Seepage Depth to saturated zone Flooding Large stones content	1.00 1.00  0.40 0.01
72: Emily-----	55	Very limited Slope Slow water movement Large stones content	1.00 0.50  0.04	Very limited Slope Seepage Large stones content	1.00 0.50 0.47
Wolot-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
73: Endoaquolls, mesic--	85	Very limited Depth to saturated zone Seepage Slow water movement Large stones content	1.00 1.00 0.72  0.47	Very limited Depth to saturated zone Seepage	1.00 1.00
74: Ferguson-----	85	Very limited Seepage Slow water movement Slope Large stones content	1.00 0.50  0.04 0.01	Very limited Seepage Slope	1.00 1.00
75: Ferguson-----	85	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50  0.01	Very limited Slope Seepage	1.00 1.00
76: Ferguson-----	85	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50  0.01	Very limited Slope Seepage	1.00 1.00
77: Ferguson-----	85	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50  0.01	Very limited Slope Seepage	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
78: Ferguson-----	85	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.01	Very limited Slope Seepage	1.00 1.00
79: Flybow-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
80: Flybow-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
81: Flycreek-----	65	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Flyvalley-----	20	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
82: Freels-----	85	Very limited Seepage Depth to saturated zone Flooding	1.00 0.99 0.40	Very limited Seepage Depth to saturated zone Flooding	1.00 0.71 0.40
83: Geisercreek-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Seepage	1.00 1.00
84: Gelsinger-----	85	Very limited Slow water movement	1.00	Somewhat limited Slope	0.68
85: Gelsinger-----	85	Very limited Slow water movement Slope	1.00 0.63	Very limited Slope	1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
86: Getaway-----	85	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
87: Getaway-----	85	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
88: Getaway-----	45	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
Anatone-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	10	Not rated		Not rated	
89: Getaway-----	50	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
Harlow-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
90: Getaway-----	50	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
Harlow-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
91: Getaway-----	40	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
Harlow-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Rock outcrop-----	15	Not rated		Not rated	
92: Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
Linecreek-----	30	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
93: Getaway-----	50	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.26	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.38
Snell-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
94: Gwin-----	55	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.47	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.18



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
94: Kettenbach-----	20	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.74	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
95: Gwin-----	55	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.47	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.18
Kettenbach-----	20	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.74	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
96: Gwin-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.47	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.18
Klickson-----	30	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50
Kettenbach-----	20	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.74	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.50
97: Gwinly-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Kettenbach-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.74	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
98: Gwinly-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 1.00
Mallory-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 1.00
99: Gwinly-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Mallory-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
100: Gwinly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Mallory-----	25	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Kettenbach-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.74	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00 0.50
101: Gwinly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
101: Mallory-----	25	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Kettenbach-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.74	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.50
102: Gwinly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Mallory-----	25	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Kettenbach-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.74	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.50
103: Gwinly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Mallory-----	25	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
104: Gwinly-----	50	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
104: Rockly-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
105: Gwinly-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Rockly-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
106: Gwinly-----	60	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Sopher-----	25	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
107: Gwinly-----	55	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Sopher-----	25	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
Rock outcrop-----	10	Not rated		Not rated	
108: Hapludolls, frigid--	35	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Seepage Flooding Slope	1.00 1.00 0.40 0.08
Endoaquolls, frigid	30	Very limited Flooding Depth to saturated zone Filtering capacity Seepage Large stones content	1.00 1.00 1.00 1.00 0.85	Very limited Flooding Depth to saturated zone Seepage Slope	1.00 1.00 1.00 0.08

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
108: Endoaquents, frigid	20	Very limited Flooding Depth to saturated zone Filtering capacity Seepage Large stones content	1.00 1.00 1.00 1.00 0.53	Very limited Flooding Depth to saturated zone Seepage Slope Large stones content	1.00 1.00 1.00 0.08 0.01
109: Harl-----	40	Very limited Slope Large stones content Slow water movement	1.00 0.55 0.50	Very limited Slope Seepage Large stones content	1.00 1.00 0.75
Anatone-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	15	Not rated		Not rated	
110: Harl-----	45	Very limited Slope Large stones content Slow water movement	1.00 0.55 0.50	Very limited Slope Seepage Large stones content	1.00 1.00 0.75
Anatone-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	10	Not rated		Not rated	
111: Harl-----	45	Very limited Slope Large stones content Slow water movement	1.00 0.55 0.50	Very limited Slope Seepage Large stones content	1.00 1.00 0.75
Getaway-----	40	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
112: Harl-----	50	Very limited Slope Large stones content Slow water movement	1.00 0.55 0.50	Very limited Slope Seepage Large stones content	1.00 1.00 0.75

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
112: Limberjim-----	25	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
113: Harlow-----	60	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Bocker-----	25	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
114: Harlow-----	60	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Bocker-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
115: Harlow-----	45	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Bocker-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
116: Harlow-----	50	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Bocker-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
117: Harlow-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Bocker-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Rock outcrop-----	20	Not rated		Not rated	
118: Harlow-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Imnaha-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
119: Harlow-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Imnaha-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
120: Harlow-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Imnaha-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
121: Harlow-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Klicker-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
122: Harlow-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Klicker-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
123: Harlow-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Snell-----	25	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
Imnaha-----	25	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
124: Harlow-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Snell-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
124: Imnaha-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
125: Harlow-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Snell-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Imnaha-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
126: Harlow-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Snell-----	25	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
127: Harlow-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Tamarackcanyon-----	25	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
Linecreek-----	20	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
128: Harlow-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Tamarackcanyon-----	25	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
Olot-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
129: Harlow-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Threebuck-----	35	Very limited Slow water movement Slope Depth to bedrock Large stones content	1.00 1.00 0.89 0.35	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.71 0.50
130: Hershal-----	85	Very limited Flooding Depth to saturated zone Seepage Slow water movement	1.00 1.00 1.00 0.50	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
131: Hershal-----	50	Very limited Flooding Depth to saturated zone Seepage Slow water movement	1.00 1.00 1.00 0.50	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
Voats-----	35	Very limited Flooding Filtering capacity Seepage Depth to saturated zone Large stones content	1.00 1.00 1.00 0.65 0.12	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.02

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
132: Hershal-----	35	Very limited Flooding Depth to saturated zone Seepage Slow water movement	1.00 1.00 1.00 0.50	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
Voats-----	30	Very limited Flooding Filtering capacity Seepage Depth to saturated zone Large stones content	1.00 1.00 1.00 0.65 0.12	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.02
Veazie-----	20	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.65	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.02
133: Howmeadows-----	50	Very limited Slow water movement Depth to bedrock Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to hard bedrock Depth to saturated zone	1.00 1.00
Wilkins-----	35	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 0.50
134: Hurwal-----	90	Very limited Slow water movement	1.00	Somewhat limited Slope Seepage	0.68 0.50
135: Hurwal-----	90	Very limited Slow water movement Slope	1.00 0.63	Very limited Slope Seepage	1.00 0.50
136: Hurwal, deep-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.36	Very limited Slope Seepage Depth to hard bedrock	1.00 0.50 0.01
137: Hurwal, deep-----	85	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.36	Very limited Slope Seepage Depth to hard bedrock	1.00 0.50 0.01
138: Hurwal-----	90	Very limited Slow water movement	1.00	Somewhat limited Slope Seepage	0.68 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
139: Hurwal-----	90	Very limited Slow water movement Slope	1.00 0.63	Very limited Slope Seepage	1.00 0.50
140: Hurwal-----	90	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 0.50
141: Imnaha-----	55	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
142: Imnaha-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Imhaha, moist-----	30	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 0.50 0.01	Very limited Depth to hard bedrock Slope Seepage Large stones content	1.00 1.00 1.00 0.14
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
143: Imnaha-----	40	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Bocker-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Clearline-----	20	Very limited Slope Seepage Depth to bedrock Large stones content	1.00 1.00 0.52 0.01	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.08

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
144: Imnaha-----	45	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Cherrycreek-----	30	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.63 0.50	Very limited Slope Seepage Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18
Anatone-----	15	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
145: Imnaha-----	40	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Clearline-----	30	Very limited Slope Seepage Depth to bedrock Large stones content	1.00 1.00 0.52 0.01	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.08
Rock outcrop-----	15	Not rated		Not rated	
146: Imnaha-----	45	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Cherrycreek-----	20	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.63 0.50	Very limited Slope Seepage Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18
147: Josset-----	85	Very limited Flooding Depth to saturated zone Filtering capacity Seepage	1.00 1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
148: Kahler-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
148: Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
149: Kahler-----	40	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 0.50
Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Rock outcrop-----	10	Not rated		Not rated	
150: Kahler-----	35	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 0.50
Linecreek-----	30	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Getaway-----	20	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
151: Kahler-----	35	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 0.50
Linecreek-----	35	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Getaway-----	15	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
152: Klicker-----	85	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 1.00 0.72 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 1.00
153: Klicker-----	85	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
154: Klicker-----	85	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
155: Klicker-----	85	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
156: Klicker-----	85	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
157: Klicker-----	50	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 1.00 0.72 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 1.00
Anatone-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
158: Klicker-----	50	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
158: Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
159: Klicker-----	50	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
160: Klicker-----	35	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 1.00 0.72 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
Fivebit-----	30	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Anatone-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
161: Klicker-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Fivebit-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
162: Klicker-----	50	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Harlow-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
163: Klicker-----	40	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Kamela-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 0.86 0.50
Fivebit-----	15	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
164: Klicker-----	55	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.44	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.82
Olot-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
165: Klicker-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.44	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.82

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
165: Thirstygulch-----	30	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
166: Klicker-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.44	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.82
Thirstygulch-----	30	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
167: Klicker-----	40	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
168: Klickson-----	35	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
168: Anatone-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Larabee-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
169: Klickson-----	35	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50
Anatone-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Larabee-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
170: Klickson-----	60	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50
Larabee-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
171: Klickson-----	35	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50
Larabee-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Volstead-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.86	Very limited Slope Depth to hard bedrock Seepage	1.00 0.61 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
172: Langrell-----	85	Very limited Seepage Slow water movement Large stones content	1.00 0.50 0.18	Very limited Seepage	1.00
173: Langrell-----	50	Very limited Seepage Slow water movement Large stones content	1.00 0.50 0.18	Very limited Seepage	1.00
Snow-----	35	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
174: Larabee-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Getaway-----	30	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
Klickson-----	20	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50
175: Larabee-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Klickson-----	30	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50
Volstead-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.86	Very limited Slope Depth to hard bedrock Seepage	1.00 0.61 0.50
176: Larabee-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
176: Klickson-----	30	Very limited Slope Slow water movement Large stones content	1.00 1.00 0.85	Very limited Slope Large stones content Seepage	1.00 0.93 0.50
Volstead-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.86	Very limited Slope Depth to hard bedrock Seepage	1.00 0.61 0.50
177: Larabee-----	45	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Melhorn-----	40	Very limited Slow water movement Slope	1.00 0.01	Very limited Slope Seepage	1.00 0.50
178: Larabee-----	45	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Volstead-----	40	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.86	Very limited Slope Depth to hard bedrock Seepage	1.00 0.61 0.50
179: Laufer-----	50	Very limited Depth to bedrock Large stones content Slope	1.00 0.96 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
Thiessen-----	35	Very limited Slow water movement Depth to bedrock Large stones content Slope	1.00 1.00 0.18 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.17
180: Laufer-----	50	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Thiessen-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.17

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
181: Laufer-----	45	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Thiessen-----	40	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.17
182: Laufer-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Thiessen-----	30	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.17
Rock outcrop-----	15	Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.96 0.01	Very limited Slope Depth to hard bedrock	1.00 0.88
Lawyer-----	25	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.96 0.01	Very limited Slope Depth to hard bedrock	1.00 0.88
Gwinly-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
184: Licksillet-----	40	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
184: Dixiejett-----	25	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.98	Very limited Slope Depth to hard bedrock	1.00 0.93
Rock outcrop-----	20	Not rated		Not rated	
185: Lickskillet-----	40	Very limited Depth to bedrock Large stones content Seepage Slope	1.00 1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Seepage Slope	1.00 1.00 1.00 1.00
Doublecreek-----	25	Somewhat limited Slow water movement Slope	0.50 0.04	Very limited Seepage Slope	1.00 1.00
Rockly-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
186: Lickskillet-----	30	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00
Doublecreek-----	30	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Rockly-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope	1.00 1.00
187: Limberjim-----	85	Somewhat limited Depth to bedrock Slow water movement Large stones content Slope	0.99 0.50 0.05 0.04	Very limited Seepage Slope Depth to hard bedrock	1.00 1.00 0.99
188: Limberjim-----	50	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.99

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
188: Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
189: Limberjim-----	60	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.99
Syrupcreek-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
190: Limberjim-----	70	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.99 0.50 0.05	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.99
Syrupcreek-----	15	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
191: Limberjim-----	45	Somewhat limited Depth to bedrock Slow water movement Large stones content Slope	0.99 0.50 0.05 0.01	Very limited Seepage Slope Depth to hard bedrock	1.00 1.00 0.99
Tamara-----	40	Very limited Slow water movement Slope	1.00 0.01	Very limited Seepage Slope	1.00 1.00
192: Linecreek-----	55	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
193: Lookingglass-----	85	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Slope Seepage	1.00 0.68 0.50
194: Lookingglass-----	85	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.63	Very limited Slope Depth to saturated zone Seepage	1.00 1.00 0.50
195: Lookingglass, stony	85	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope Large stones content Seepage	1.00 1.00 0.99 0.50
196: Lookingglass, cobbly	60	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 1.00	Very limited Slope Depth to saturated zone Seepage Large stones content	1.00 1.00 0.50 0.01
Lookingglass-----	25	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope Seepage	1.00 1.00 0.50
197: Lookingglass-----	65	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope Seepage	1.00 1.00 0.50
Sopher-----	20	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
198: Lookingglass-----	65	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope Seepage	1.00 1.00 0.50
Sopher-----	20	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
199: Lostine-----	85	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage	1.00
200: Mallory-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Gwinly-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Lawyer-----	25	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.96 0.01	Very limited Slope Depth to hard bedrock	1.00 0.88
201: Mallory-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Gwinly-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Lawyer-----	25	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.96 0.01	Very limited Slope Depth to hard bedrock	1.00 0.88
202: Mallory-----	40	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
Lawyer-----	35	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.96 0.01	Very limited Slope Depth to hard bedrock	1.00 0.88

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
202: Rock outcrop-----	10	Not rated		Not rated	
203: Matheny-----	35	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.96 0.50 0.43	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.50
Linville-----	25	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.50
Laufer-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.96	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
204: Matterhorn-----	85	Very limited Filtering capacity Seepage Large stones content	1.00 1.00 0.93	Very limited Seepage Large stones content	1.00 0.99
205: Minam-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
206: Minam-----	85	Somewhat limited Slope Slow water movement	0.63 0.50	Very limited Slope Seepage	1.00 0.50
207: Minam-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
208: Minam-----	85	Somewhat limited Slope Slow water movement	0.63 0.50	Very limited Slope Seepage	1.00 0.50
209: Minam-----	90	Somewhat limited Slow water movement Slope	0.50 0.04	Very limited Slope Seepage Large stones content	1.00 0.50 0.14
210: Minam-----	90	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage Large stones content	0.68 0.50 0.14

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
211: Minam-----	90	Somewhat limited Slope Slow water movement	0.63 0.50	Very limited Slope Seepage Large stones content	1.00 0.50 0.14
212: Minam-----	30	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
Minam, gravelly----	20	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
Endoaquepts-----	40	Very limited Depth to saturated zone Slow water movement	1.00 0.72	Very limited Depth to saturated zone Slope Seepage	1.00 0.68 0.50
213: Minam, gravelly----	30	Somewhat limited Slope Slow water movement	0.63 0.50	Very limited Slope Seepage	1.00 0.50
Minam, stony-----	25	Somewhat limited Slope Slow water movement	0.63 0.50	Very limited Slope Seepage Large stones content	1.00 0.50 0.14
Endoaquepts-----	35	Very limited Depth to saturated zone Slow water movement Slope	1.00 0.72 0.63	Very limited Slope Depth to saturated zone Seepage	1.00 1.00 0.50
214: Mippon-----	90	Very limited Seepage Filtering capacity Depth to saturated zone Flooding Large stones content	1.00 1.00 0.99 0.40 0.03	Very limited Seepage Depth to saturated zone Flooding	1.00 0.71 0.40
215: Mountemily-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Troutmeadows-----	40	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
216: Mountemily-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
216: Troutmeadows-----	40	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
217: Mountemily-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Troutmeadows-----	40	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
218: Mountemily-----	35	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Troutmeadows-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Anatone-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
219: Needhill-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 0.63 0.50	Very limited Slope Seepage Depth to hard bedrock	1.00 1.00 0.18
Parsnip-----	25	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Bocker-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
220: Needhill-----	45	Somewhat limited Depth to bedrock Slow water movement Slope	0.63 0.50 0.01	Very limited Seepage Slope Depth to hard bedrock	1.00 1.00 0.18
Zumwalt-----	40	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
221: Olot-----	85	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
222: Olot-----	85	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
223: Olot-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Anatone-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
224: Olot-----	50	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Anatone-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
225: Parsnip-----	85	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.68
226: Parsnip-----	55	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 1.00
Bocker-----	30	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
227: Phys-----	85	Very limited Seepage Large stones content	1.00 0.87	Very limited Seepage Slope Large stones content	1.00 0.68 0.38

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
228: Phys-----	40	Very limited Seepage Slope Large stones content	1.00 0.04 0.01	Very limited Seepage Slope	1.00 1.00
Doublecreek-----	30	Somewhat limited Slow water movement Slope	0.50 0.04	Very limited Seepage Slope	1.00 1.00
Collegecreek-----	20	Somewhat limited Slow water movement Slope	0.50 0.04	Very limited Seepage Slope	1.00 1.00
229: Phys-----	35	Very limited Slope Seepage Large stones content	1.00 1.00 0.01	Very limited Slope Seepage	1.00 1.00
Doublecreek-----	30	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Collegecreek-----	25	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
230: Powwatka-----	85	Very limited Depth to bedrock Slow water movement	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 0.68 0.50
231: Powwatka-----	85	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.63	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
232: Powwatka-----	85	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
233: Powwatka-----	85	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
234: Puzzlecreek-----	85	Very limited Depth to bedrock Slope Large stones content Slow water movement	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
235: Ramo-----	85	Very limited Slow water movement	1.00	Somewhat limited Slope Seepage	0.68 0.28
236: Ramo-----	85	Very limited Slow water movement Slope	1.00 0.63	Very limited Slope Seepage	1.00 0.28
237: Ramo-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Seepage	1.00 0.28
238: Ramo-----	50	Very limited Slow water movement Slope	1.00 0.04	Very limited Slope Seepage	1.00 0.28
Conley-----	35	Very limited Slow water movement Depth to saturated zone Slope	1.00 1.00 0.04	Very limited Slope Depth to saturated zone Seepage	1.00 0.75 0.50
239: Reavis-----	85	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage	1.00
240: Redmount-----	85	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage	1.00
241: Redmount-----	85	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage Slope	1.00 0.92
242: Redmount-----	85	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage	1.00
243: Redmount-----	50	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage	1.00
Cheval-----	35	Very limited Flooding Depth to saturated zone Seepage Slow water movement	1.00 1.00 1.00 0.50	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
244: Riverwash-----	80	Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Fivebit-----	15	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
247: Rock outcrop-----	35	Not rated		Not rated	
Anatone-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Imnaha-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
248: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
Imnaha-----	15	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
249: Rock outcrop-----	50	Not rated		Not rated	
Imnaha-----	20	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
249: Cherrycreek-----	20	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.63 0.50	Very limited Slope Seepage Large stones content Depth to hard bedrock	1.00 1.00 1.00 0.18
250: Rock outcrop-----	50	Not rated		Not rated	
Linecreek-----	20	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Anatone-----	15	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
251: Rock outcrop-----	45	Not rated		Not rated	
Rockly-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope	1.00 1.00
Dixiejett-----	20	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.98	Very limited Slope Depth to hard bedrock	1.00 0.93
252: Rockly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	30	Not rated		Not rated	
Copperfield-----	20	Very limited Slow water movement Slope Large stones content	1.00 1.00 0.23	Very limited Slope Large stones content Seepage	1.00 1.00 0.50
253: Rockly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
253: Licksillet-----	25	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00
254: Rondowa-----	90	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage Slope	1.00 0.68
255: Rondowa-----	90	Very limited Seepage Slope Slow water movement	1.00 0.63 0.50	Very limited Slope Seepage	1.00 1.00
256: Rondowa-----	90	Very limited Seepage Slow water movement Large stones content Slope	1.00 0.50 0.10 0.04	Very limited Seepage Slope Large stones content	1.00 1.00 0.06
257: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.10	Very limited Slope Seepage Large stones content	1.00 1.00 0.06
258: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.10	Very limited Slope Seepage Large stones content	1.00 1.00 0.06
259: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.10	Very limited Slope Seepage Large stones content	1.00 1.00 0.06
260: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.10	Very limited Slope Seepage Large stones content	1.00 1.00 0.06

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
261: Rondowa-----	90	Very limited Seepage Slow water movement Large stones content Slope	1.00 0.50 0.06 0.04	Very limited Seepage Slope Large stones content	1.00 1.00 0.01
262: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.06	Very limited Slope Seepage Large stones content	1.00 1.00 0.01
263: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.06	Very limited Slope Seepage Large stones content	1.00 1.00 0.01
264: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.06	Very limited Slope Seepage Large stones content	1.00 1.00 0.01
265: Rondowa-----	90	Very limited Slope Seepage Slow water movement Large stones content	1.00 1.00 0.50 0.06	Very limited Slope Seepage Large stones content	1.00 1.00 0.01
266: Rubble land-----	70	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
267: Sag-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Seepage	1.00 0.50
268: Sag-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Seepage	1.00 0.50
269: Sag-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Seepage	1.00 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
270: Schrier-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
271: Schrier-----	55	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.50
Almota-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
272: Schrier-----	50	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.50
Almota-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
273: Schuelke-----	55	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 0.50 0.37	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 0.79 0.50
Schrier-----	15	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.50
Rockly-----	15	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to hard bedrock Slope	1.00 1.00
274: Silverlake-----	85	Very limited Slow water movement Seepage Depth to cemented pan	1.00 1.00 0.99	Very limited Seepage Depth to cemented pan	1.00 0.96
275: Slicklog-----	85	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
276: Slicklog-----	50	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
Eastpine-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 0.50 0.13	Very limited Depth to hard bedrock Slope Seepage Large stones content	1.00 1.00 1.00 0.22
277: Slicklog-----	55	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
Eastpine-----	20	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 0.50 0.13	Very limited Depth to hard bedrock Slope Seepage Large stones content	1.00 1.00 1.00 0.22
Rock outcrop-----	10	Not rated		Not rated	
278: Slicklog-----	50	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
Wintercanyon-----	25	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated	
279: Snell-----	85	Very limited Depth to bedrock Slow water movement Large stones content	1.00 1.00 1.00	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.68
280: Snell-----	65	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
Harlow-----	25	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
281: Snell-----	60	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Harlow-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 0.91
282: Snell-----	50	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Harlow-----	40	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 0.91
283: Snell-----	55	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Harlow-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 0.91
284: Snell-----	65	Very limited Depth to bedrock Slow water movement Large stones content Slope	1.00 1.00 1.00 1.00 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Harlow-----	25	Very limited Depth to bedrock Large stones content Slope	1.00 0.06 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 0.14

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
285: Snell-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Harlow-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Imnaha-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
286: Snell-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Harlow-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Imnaha-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
287: Snell-----	40	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00
Harlow-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
Rock outcrop-----	15	Not rated		Not rated	
288: Snell-----	35	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00 1.00



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
288: Imnaha-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
289: Snow-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
290: Sopher-----	85	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
291: Sopher-----	85	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
292: Sopher-----	60	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
Gwinly-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
293: Sopher-----	50	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
Gwinly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
294: Sopher-----	50	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00 0.96	Very limited Slope Depth to hard bedrock Seepage	1.00 0.88 0.28
Gwinly-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
295: Sturgill-----	85	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50
296: Sturgill-----	45	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50
Eggleson-----	40	Very limited Depth to saturated zone Seepage Filtering capacity Flooding Large stones content	1.00 1.00 1.00 0.40 0.01	Very limited Seepage Depth to saturated zone Flooding Large stones content	1.00 1.00 0.40 0.01
297: Sweitberg-----	85	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 0.68 0.50
298: Sweitberg-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.63	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
299: Sweiting-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
300: Sweiting-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
301: Sweiting-----	50	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
Harlow-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
302: Sweiting-----	50	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Harlow-----	35	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
303: Sweiting-----	50	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Klicker-----	40	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 1.00 0.72	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 1.00
304: Syrupcreek-----	85	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
305: Syrupcreek-----	60	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Anatone-----	25	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.79
306: Syrupcreek-----	60	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Lowerbluff-----	25	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
307: Syrupcreek-----	55	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
307: Tamara-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
308: Syrupcreek-----	65	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00 1.00
Tamara-----	20	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
309: Tamara-----	65	Very limited Slow water movement Slope	1.00 0.01	Very limited Seepage Slope	1.00 1.00
Sherod-----	20	Very limited Depth to bedrock Depth to saturated zone	1.00 1.00	Very limited Depth to hard bedrock Depth to saturated zone Large stones content	1.00 1.00 0.10
310: Tamara-----	45	Very limited Slow water movement Slope	1.00 0.01	Very limited Seepage Slope	1.00 1.00
Syrupcreek-----	40	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
311: Tamarackcanyon-----	40	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
Linecreek-----	25	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Harlow-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
312: Tamarackcanyon-----	65	Very limited Slow water movement Depth to bedrock Large stones content Slope	1.00 1.00 0.37 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
Lowerbluff-----	20	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
313: Tamarackcanyon-----	40	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
Olot-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Harlow-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
314: Tamarackcanyon-----	40	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
Olot-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Harlow-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
315: Tannahill-----	35	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 0.99 0.86 0.50	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.61 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
315: Schrier-----	35	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.50
Rock outcrop-----	15	Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope Large stones content Depth to bedrock Slow water movement	1.00 0.99 0.86 0.50	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.61 0.50
Schuelke-----	30	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 1.00 0.50 0.37	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 0.79 0.50
Lickskillet-----	25	Very limited Depth to bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00
317: Thiessen-----	85	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.18	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.17
318: Threebuck-----	70	Very limited Slow water movement Depth to bedrock Large stones content Slope	1.00 0.89 0.35 0.04	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.71 0.50
Harlow-----	15	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
319: Threebuck-----	35	Very limited Slow water movement Slope Depth to bedrock Large stones content	1.00 1.00 0.89 0.35	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.71 0.50

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
319: Linecreek-----	30	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
Harlow-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
320: Threebuck-----	50	Very limited Slow water movement Slope Depth to bedrock Large stones content	1.00 1.00 0.89 0.35	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.71 0.50
Tamarackcanyon-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
321: Threebuck-----	50	Very limited Slow water movement Slope Depth to bedrock Large stones content	1.00 1.00 0.89 0.35	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.71 0.50
Tamarackcanyon-----	35	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
322: Threebuck-----	35	Very limited Slow water movement Slope Depth to bedrock Large stones content	1.00 1.00 0.89 0.35	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.71 0.50
Tamarackcanyon-----	30	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
322: Harlow-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
323: Threebuck-----	35	Very limited Slow water movement Slope Depth to bedrock Large stones content	1.00 1.00 0.89 0.35	Very limited Slope Large stones content Depth to hard bedrock Seepage	1.00 1.00 0.71 0.50
Tamarackcanyon-----	30	Very limited Slow water movement Depth to bedrock Slope Large stones content	1.00 1.00 1.00 0.37	Very limited Depth to hard bedrock Slope	1.00 1.00
Linecreek-----	20	Very limited Slope Seepage Large stones content	1.00 1.00 0.83	Very limited Slope Seepage Large stones content	1.00 1.00 1.00
324: Tippett-----	70	Very limited Slow water movement Depth to bedrock	1.00 0.73	Somewhat limited Seepage Depth to hard bedrock	0.50 0.32
Harlow-----	20	Very limited Depth to bedrock Large stones content	1.00 0.61	Very limited Depth to hard bedrock Large stones content	1.00 0.91
325: Tippett-----	70	Very limited Slow water movement Depth to bedrock	1.00 0.73	Somewhat limited Seepage Depth to hard bedrock	0.50 0.32
Zumwalt-----	20	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock	1.00
326: Tolo-----	85	Very limited Slow water movement Slope	1.00 0.04	Very limited Seepage Slope	1.00 1.00
327: Tolo-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00



Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
328: Tolo, fan-----	85	Very limited Slow water movement Slope	1.00 0.04	Very limited Seepage Slope	1.00 1.00
329: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
330: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
331: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
332: Tolo-----	50	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
Getaway-----	35	Very limited Slope Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.86 0.18	Very limited Slope Depth to hard bedrock Seepage Large stones content	1.00 0.61 0.50 0.11
333: Tolo-----	50	Very limited Slow water movement Slope	1.00 0.04	Very limited Seepage Slope	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
333: Olot-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
334: Tolo-----	55	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope Seepage	1.00 1.00
Olot-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
335: Topper-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
336: Topper-----	85	Somewhat limited Slope Slow water movement	0.63 0.50	Very limited Slope Seepage	1.00 0.50
337: Topper-----	85	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.50
338: Topper-----	85	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.50
339: Troutmeadows-----	65	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 1.00
Crawfish-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.92 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.02
340: Tuckerdowns-----	85	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage Slope	1.00 0.68
341: Tuckerdowns-----	85	Very limited Seepage Slope Slow water movement	1.00 0.63 0.50	Very limited Slope Seepage	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
342: Tuckerdowns-----	85	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
343: Vandamine-----	60	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Bordengulch-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
344: Vandamine-----	50	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 1.00
Bordengulch-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
345: Veazie-----	85	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.65	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.02
346: Voats-----	50	Very limited Flooding Filtering capacity Seepage Depth to saturated zone Large stones content	1.00 1.00 1.00 0.65 0.12	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.02
Veazie-----	35	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.65	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.02
347: Volstead-----	35	Very limited Slow water movement Depth to bedrock Slope	1.00 0.86 0.01	Very limited Slope Depth to hard bedrock Seepage	1.00 0.61 0.50
Quirk-----	30	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.01	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.28

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
347: Bocker-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
348: Volstead-----	35	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.86	Very limited Slope Depth to hard bedrock Seepage	1.00 0.61 0.50
Quirk-----	30	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.28
Bocker-----	20	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.01
349: Wallowa-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Bocker-----	40	Very limited Depth to bedrock Large stones content	1.00 0.99	Very limited Depth to hard bedrock Slope Large stones content	1.00 0.68 0.01
350: Watama-----	85	Very limited Depth to bedrock Slow water movement	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 0.68
351: Watama-----	85	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 1.00
352: Watama-----	50	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
Rockly-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
353: Water-----	95	Not rated		Not rated	
354: Wilkins-----	85	Very limited Flooding Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage Slope	1.00 1.00 0.50 0.08
355: Wilkins-----	55	Very limited Flooding Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50
Feaginranch-----	30	Very limited Flooding Slow water movement Depth to saturated zone Ponding	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Ponding	1.00 1.00 1.00
356: Wolot-----	85	Very limited Slow water movement Slope	1.00 0.01	Very limited Seepage Slope	1.00 1.00
357: Zumwalt-----	65	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 0.68
Harlow-----	25	Very limited Depth to bedrock Large stones content	1.00 0.61	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.91 0.68
358: Zumwalt-----	65	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 1.00
Harlow-----	25	Very limited Depth to bedrock Slope Large stones content	1.00 0.63 0.61	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91
359: Zumwalt-----	65	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 13a.--Sanitary Facilities (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
359: Harlow-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.61 0.04	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.91

Table 13b.--Sanitary Facilities (Part II)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Very limited Depth to saturated zone Too clayey	1.00  0.50	Very limited Depth to saturated zone Seepage	1.00  1.00	Somewhat limited Too clayey Depth to saturated zone	0.50  0.09
2: Akerite-----	85	Very limited Depth to saturated zone Slope Too clayey	1.00  0.63 0.50	Very limited Depth to saturated zone Seepage Slope	1.00  1.00 0.63	Somewhat limited Slope Too clayey Depth to saturated zone	0.63 0.50 0.09
3: Albee-----	45	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Anatone-----	40	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04
4: Albee-----	50	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.99  0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.99  0.04
5: Analulu-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.80
Slicklog-----	30	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.50
Bluecanyon-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.94
6: Analulu-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.80
Slicklog-----	35	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7: Anatone-----	50	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04
Bocker-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04
8: Anatone-----	50	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Bocker-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
9: Anatone-----	50	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Bocker-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
10: Anatone-----	35	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.01
Bocker-----	30	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01
Fivebit-----	20	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Gravel content Slope	1.00 1.00 0.01
11: Anatone-----	40	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11: Fivebit-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
12: Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Cherrycreek-----	30	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Large stones Seepage Depth to bedrock Gravel content	1.00 1.00 0.52 0.18 0.11
Imnaha-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
13: Anatone-----	40	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Imnaha-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	10	Not rated		Not rated		Not rated	
14: Anatone-----	45	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Kamela-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.18
15: Anatone-----	50	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Klicker-----	30	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16: Anatone-----	50	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Linecreek-----	25	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content  Large stones content	1.00 1.00 0.86  0.74
Rock outcrop-----	10	Not rated		Not rated		Not rated	
17: Anatone-----	50	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Olot-----	35	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
18: Anatone-----	45	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Clearline-----	15	Very limited Slope Depth to bedrock Seepage Large stones content	1.00 1.00 1.00 0.09	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.08	Very limited Slope Seepage Gravel content Large stones content Depth to bedrock	1.00 0.52 0.25 0.09  0.08
19: Anatone-----	40	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Fivebit-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
20: Anatone-----	40	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20: Imnaha-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
21: Balm-----	50	Very limited Depth to saturated zone Seepage Too sandy Flooding	1.00 1.00 0.50 0.40	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Seepage Depth to saturated zone Too sandy Gravel content	1.00 0.99 0.50 0.10
Catherine-----	40	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.95
22: Bittercreek-----	65	Very limited Depth to saturated zone Seepage Too sandy Flooding Large stones content	1.00 1.00 0.50 0.40 0.11	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Seepage Too sandy Large stones content	1.00 1.00 0.50 0.11
Mippon-----	20	Very limited Depth to saturated zone Seepage Too sandy Flooding Large stones content	1.00 1.00 0.50 0.40 0.25	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Seepage Too sandy Large stones content Gravel content	1.00 0.50 0.25 0.17
23: Bocker-----	85	Very limited Depth to bedrock Large stones content	1.00 0.99	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Large stones content	1.00 0.99
24: Bocker-----	60	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04
Anatone-----	15	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	
25: Bocker-----	60	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25: Anatone-----	15	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	
26: Bocker-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
Clearline-----	20	Very limited Slope Depth to bedrock Seepage Large stones content	1.00 1.00 1.00 0.09	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.08	Very limited Slope Seepage Gravel content Large stones content Depth to bedrock	1.00 0.52 0.25 0.09 0.08
Rock outcrop-----	20	Not rated		Not rated		Not rated	
27: Bocker-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
Imnaha-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	15	Not rated		Not rated		Not rated	
28: Bridgewater-----	90	Very limited Flooding Seepage Large stones Too sandy Slope	1.00 1.00 1.00 0.50 0.01	Very limited Flooding Seepage Slope	1.00 1.00 0.01	Very limited Seepage Large stones Too sandy Slope	1.00 1.00 0.50 0.01
29: Btree-----	45	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.96	Very limited Slope Too clayey Depth to bedrock	1.00 1.00 0.96
Flycreek-----	40	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 1.00
30: Btree-----	45	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.96	Very limited Slope Too clayey Depth to bedrock	1.00 1.00 0.96
Flycreek-----	40	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 1.00

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
31: Btree-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.96	Very limited Slope Too clayey Depth to bedrock	1.00 1.00 0.96
Flycreek-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 1.00
Anatone-----	30	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
32: Btree-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.96	Very limited Slope Too clayey Depth to bedrock	1.00 1.00 0.96
Flycreek-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 1.00
Anatone-----	30	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
33: Btree-----	40	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.96	Very limited Slope Too clayey Depth to bedrock	1.00 1.00 0.96
Klicker-----	30	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
34: Bucketlake-----	85	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 0.52
35: Bucketlake-----	85	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 0.52
36: Buford-----	45	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Depth to bedrock Slope	0.42 0.04	Somewhat limited Depth to bedrock Slope	0.42 0.04

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
36: Anatone-----	40	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04
37: Buford-----	45	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Depth to bedrock Slope	0.42 0.04	Somewhat limited Depth to bedrock Slope	0.42 0.04
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04
38: Bunchpoint-----	85	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
39: Bunchpoint-----	45	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
Bocker-----	40	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01
40: Chard-----	90	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 0.52
41: Cherrycreek-----	50	Very limited Depth to bedrock Large stones Slope	1.00 1.00 0.04	Very limited Seepage Depth to bedrock Slope	1.00 0.18 0.04	Very limited Large stones Seepage Depth to bedrock Gravel content Slope	1.00 0.52 0.18 0.11 0.04
Imnaha-----	35	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Seepage Slope	1.00 0.52 0.04
42: Cherrycreek-----	50	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Large stones Seepage Depth to bedrock Gravel content	1.00 1.00 0.52 0.18 0.11
Imnaha-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Imnaha, moist-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43: Cherrycreek-----	40	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Large stones Seepage Depth to bedrock Gravel content	1.00 1.00 0.52 0.18 0.11
Imnaha-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	10	Not rated		Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Large stones Seepage Depth to bedrock Gravel content	1.00 1.00 0.52 0.18 0.11
Limberjim-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.08	Very limited Slope Depth to bedrock	1.00 0.99	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.99 0.50 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
45: Chesnimnus-----	85	Very limited Seepage	1.00	Not limited		Not limited	
46: Chesnimnus-----	85	Very limited Seepage	1.00	Not limited		Not limited	
47: Cheval-----	85	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Seepage Depth to saturated zone Too sandy Gravel content	1.00 0.86 0.50 0.47
48: Cloverland-----	90	Somewhat limited Depth to saturated zone	0.95	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.68
49: Cloverland-----	90	Somewhat limited Depth to saturated zone Slope	0.95 0.63	Somewhat limited Slope Depth to saturated zone	0.63 0.44	Somewhat limited Depth to saturated zone Slope	0.68 0.63
50: Conley-----	90	Very limited Depth to saturated zone Too clayey	0.99 0.50	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone Too clayey	0.86 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51: Conley-----	90	Very limited Depth to saturated zone Too clayey	0.99 0.50	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone Too clayey	0.86 0.50
52: Copperfield-----	50	Very limited Slope Large stones content Too clayey	1.00 0.53 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.53 0.50 0.01
Thiessen-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.18 0.16
53: Copperfield-----	40	Very limited Slope Large stones content Too clayey	1.00 0.53 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.53 0.50 0.01
Thiessen-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.18 0.16
Rock outcrop-----	15	Not rated		Not rated		Not rated	
54: Cowsly-----	90	Very limited Depth to saturated zone Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Depth to saturated zone Depth to bedrock	1.00 0.42	Very limited Too clayey Depth to saturated zone Depth to bedrock	1.00 0.86 0.42
55: Cowsly-----	90	Very limited Depth to saturated zone Depth to bedrock Too clayey Slope	1.00 1.00 1.00 0.63	Very limited Depth to saturated zone Slope Depth to bedrock	1.00 0.63 0.42	Very limited Too clayey Depth to saturated zone Slope Depth to bedrock	1.00 0.86 0.63 0.42
56: Cowsly-----	85	Very limited Depth to saturated zone Depth to bedrock Too clayey Slope	1.00 1.00 1.00 0.04	Very limited Depth to saturated zone Depth to bedrock Slope	1.00 0.42 0.04	Very limited Too clayey Depth to saturated zone Depth to bedrock Slope	1.00 0.86 0.42 0.04
57: Cowsly, cobbly-----	60	Very limited Depth to saturated zone Slope Depth to bedrock Too clayey	1.00 1.00 1.00 1.00	Very limited Slope Depth to saturated zone Depth to bedrock	1.00 1.00 0.42	Very limited Slope Too clayey Depth to saturated zone Depth to bedrock	1.00 1.00 0.86 0.42



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
57: Cowsly-----	25	Very limited Depth to saturated zone Depth to bedrock Too clayey Slope	1.00 1.00 1.00 0.04	Very limited Depth to saturated zone Depth to bedrock Slope	1.00 0.42 0.04	Very limited Too clayey Depth to saturated zone Depth to bedrock Slope	1.00 0.86 0.42 0.04
58: Cowsly, cobbly-----	60	Very limited Depth to saturated zone Slope Depth to bedrock Too clayey	1.00 1.00 1.00 1.00	Very limited Slope Depth to saturated zone Depth to bedrock	1.00 1.00 0.42	Very limited Slope Too clayey Depth to saturated zone Depth to bedrock	1.00 1.00 0.86 0.42
Cowsly-----	25	Very limited Depth to saturated zone Depth to bedrock Too clayey Slope	1.00 1.00 1.00 0.04	Very limited Depth to saturated zone Depth to bedrock Slope	1.00 0.42 0.04	Very limited Too clayey Depth to saturated zone Depth to bedrock Slope	1.00 0.86 0.42 0.04
59: Cowsly-----	60	Very limited Depth to saturated zone Depth to bedrock Too clayey Slope	1.00 1.00 1.00 0.04	Very limited Depth to saturated zone Depth to bedrock Slope	1.00 0.42 0.04	Very limited Too clayey Depth to saturated zone Depth to bedrock Slope	1.00 0.86 0.42 0.04
Howmeadows-----	15	Very limited Depth to saturated zone Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Depth to saturated zone Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Depth to saturated zone Too clayey	1.00 1.00 1.00
Sherod-----	15	Very limited Depth to saturated zone Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Depth to saturated zone Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Depth to saturated zone Too clayey	1.00 1.00 0.50
60: Demasters-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Depth to bedrock	1.00 0.88
Snell-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
61: Dixiejett-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.94	Very limited Slope Gravel content Depth to bedrock	1.00 0.99 0.94
Lickskillet-----	30	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.22

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61: Rockly-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.68 0.07
62: Doublecreek-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Flybow-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
63: Doublecreek-----	55	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Langrell-----	30	Very limited Seepage Large stones content	1.00 0.81	Very limited Seepage	1.00	Somewhat limited Large stones content Seepage Gravel content	0.81 0.52 0.05
64: Doublecreek-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Phys-----	40	Very limited Seepage Large stones content Slope	1.00 0.16 0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Seepage Large stones content Slope Gravel content	0.52 0.16 0.04 0.01
65: Downards-----	45	Very limited Slope Large stones content Too clayey	1.00 0.85 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey	1.00 0.85 0.50
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	20	Not rated		Not rated		Not rated	
66: Downards-----	50	Very limited Slope Large stones content Too clayey	1.00 0.85 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey	1.00 0.85 0.50
Emily-----	20	Very limited Slope Too clayey Large stones content	1.00 0.50 0.18	Very limited Slope	1.00	Very limited Slope Too clayey Gravel content Large stones content	1.00 0.50 0.26 0.18

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66: Sopher-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
67: Downards-----	60	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 0.32	Very limited Slope Large stones content Too clayey Depth to bedrock	1.00 0.74 0.50 0.32
Klicker-----	25	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
68: Downards-----	60	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 0.32	Very limited Slope Large stones content Too clayey Depth to bedrock	1.00 0.74 0.50 0.32
Klicker-----	25	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
69: Downeygulch-----	50	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Gravel content Slope	1.00 0.01 0.01
Lowerbluff-----	35	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Seepage Slope	1.00 0.52 0.01
70: Downeygulch-----	55	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.01
Thirstygulch-----	30	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.50
71: Eggleson-----	85	Very limited Depth to saturated zone Seepage Too sandy Flooding Large stones content	1.00 1.00 1.00 0.40 0.01	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Too sandy Seepage Gravel content Depth to saturated zone Large stones content	1.00 1.00 1.00 0.47 0.01

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72: Emily-----	55	Very limited Slope Too clayey Large stones content	1.00 0.50 0.18	Very limited Slope	1.00	Very limited Slope Too clayey Gravel content Large stones content	1.00 0.50 0.26 0.18
Wolot-----	30	Very limited Slope	1.00	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00
73: Endoaquolls, mesic--	85	Very limited Depth to saturated zone Seepage Large stones content Too sandy	1.00 1.00 0.85 0.50	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage Large stones content Too sandy	1.00 1.00 0.85 0.50
74: Ferguson-----	85	Very limited Seepage Too sandy Slope	1.00 0.50 0.04	Very limited Seepage Slope	1.00 0.04	Very limited Seepage Too sandy Slope	1.00 0.50 0.04
75: Ferguson-----	85	Very limited Slope Seepage Too sandy	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Too sandy	1.00 1.00 0.50
76: Ferguson-----	85	Very limited Slope Seepage Too sandy	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Too sandy	1.00 1.00 0.50
77: Ferguson-----	85	Very limited Slope Seepage Too sandy	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Too sandy	1.00 1.00 0.50
78: Ferguson-----	85	Very limited Slope Seepage Too sandy	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Too sandy	1.00 1.00 0.50
79: Flybow-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
80: Flybow-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81: Flycreek-----	65	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04
Flyvalley-----	20	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Seepage Slope	1.00 0.52 0.04
82: Freels-----	85	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Somewhat limited Seepage	0.22
83: Geisercreek-----	85	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
84: Gelsinger-----	85	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
85: Gelsinger-----	85	Somewhat limited Slope Too clayey	0.63 0.50	Somewhat limited Slope	0.63	Somewhat limited Slope Too clayey	0.63 0.50
86: Getaway-----	85	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
87: Getaway-----	85	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
88: Getaway-----	45	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
Anatone-----	30	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
89: Getaway-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
Harlow-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
90: Getaway-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
Harlow-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
91: Getaway-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
Harlow-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Rock outcrop-----	15	Not rated		Not rated		Not rated	
92: Getaway-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
Linecreek-----	30	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
93: Getaway-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.38	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.38
Snell-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
94: Gwin-----	55	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.47	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 0.50 0.47 0.04
Kettenbach-----	20	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey Gravel content	1.00 1.00 0.74 0.50 0.03
Rock outcrop-----	10	Not rated		Not rated		Not rated	
95: Gwin-----	55	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.47	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 0.50 0.47 0.04
Kettenbach-----	20	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey Gravel content	1.00 1.00 0.74 0.50 0.03
Rock outcrop-----	10	Not rated		Not rated		Not rated	
96: Gwin-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.47	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 0.50 0.47 0.04
Klickson-----	30	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96: Kettenbach-----	20	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey Gravel content	1.00 1.00 0.74 0.50 0.03
97: Gwinly-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Kettenbach-----	35	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey Gravel content	1.00 1.00 0.74 0.50 0.03
Rock outcrop-----	10	Not rated		Not rated		Not rated	
98: Gwinly-----	40	Very limited Depth to bedrock Too clayey Slope Large stones content	1.00 1.00 1.00 0.99	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Too clayey Slope Large stones content	1.00 1.00 1.00 0.99
Mallory-----	35	Very limited Depth to bedrock Too clayey Slope Large stones content	1.00 1.00 1.00 0.93	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Too clayey Slope Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
99: Gwinly-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Mallory-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
100: Gwinly-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
100: Mallory-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
Kettenbach-----	25	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey Gravel content	1.00 1.00 0.74 0.50 0.03
101: Gwinly-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Mallory-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
Kettenbach-----	25	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey Gravel content	1.00 1.00 0.74 0.50 0.03
102: Gwinly-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Mallory-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
Kettenbach-----	25	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.74 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey Gravel content	1.00 1.00 0.74 0.50 0.03

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
103: Gwinly-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Mallory-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
Rock outcrop-----	25	Not rated		Not rated		Not rated	
104: Gwinly-----	50	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.99 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.99 0.04
Rockly-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Gravel content Slope	1.00 0.68 0.07 0.04
105: Gwinly-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Rockly-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.68 0.07
Rock outcrop-----	20	Not rated		Not rated		Not rated	
106: Gwinly-----	60	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Sopher-----	25	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
107: Gwinly-----	55	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Sopher-----	25	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
Rock outcrop-----	10	Not rated		Not rated		Not rated	
108: Hapludolls, frigid--	35	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Somewhat limited Depth to saturated zone Seepage	0.47 0.16
Endoaquolls, frigid	30	Very limited Flooding Depth to saturated zone Seepage Large stones	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Large stones	1.00 1.00 1.00
Endoaquents, frigid	20	Very limited Flooding Depth to saturated zone Seepage Large stones content Too sandy	1.00 1.00 1.00 0.88 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Large stones content Too sandy Gravel content	1.00 1.00 1.00 0.88 0.50 0.13
109: Harl-----	40	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Seepage	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.83 0.33
Anatone-----	30	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
110: Harl-----	45	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Seepage	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.83 0.33
Anatone-----	30	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
111: Harl-----	45	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Seepage	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.83 0.33
Getaway-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
112: Harl-----	50	Very limited Slope Large stones content	1.00 0.83	Very limited Slope Seepage	1.00 1.00	Very limited Slope Large stones content Gravel content	1.00 0.83 0.33
Limberjim-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.08	Very limited Slope Depth to bedrock	1.00 0.99	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.99 0.50 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
113: Harlow-----	60	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04
Bocker-----	25	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04
114: Harlow-----	60	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
115: Harlow-----	45	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
115: Bocker-----	40	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
116: Harlow-----	50	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04
Bocker-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.04
117: Harlow-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Bocker-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
Rock outcrop-----	20	Not rated		Not rated		Not rated	
118: Harlow-----	40	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04
Imnaha-----	35	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Seepage Slope	1.00 0.52 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	
119: Harlow-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Imnaha-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120: Harlow-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Imnaha-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	10	Not rated		Not rated		Not rated	
121: Harlow-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Klicker-----	35	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
122: Harlow-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Klicker-----	35	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
123: Harlow-----	35	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04
Snell-----	25	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Hard to compact Large stones Too clayey Slope	1.00 1.00 1.00 0.50 0.04
Imnaha-----	25	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Seepage Slope	1.00 0.52 0.04

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
124: Harlow-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Snell-----	25	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Imnaha-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
125: Harlow-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Snell-----	25	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Imnaha-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
126: Harlow-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Snell-----	25	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	
127: Harlow-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
127: Tamarackcanyon-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
Linecreek-----	20	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
128: Harlow-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Tamarackcanyon-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
Olot-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
129: Harlow-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Threebuck-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.01	Very limited Slope Depth to bedrock	1.00 0.71	Very limited Slope Too clayey Depth to bedrock Large stones content	1.00 1.00 0.71 0.01
130: Hershal-----	85	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Too sandy Gravel content	1.00 1.00 1.00 0.50 0.01
131: Hershal-----	50	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Too sandy Gravel content	1.00 1.00 1.00 0.50 0.01



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
131: Voats-----	35	Very limited Flooding Depth to saturated zone Seepage Large stones content Too sandy	1.00 1.00 1.00 0.50 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Seepage Large stones content Too sandy	1.00 0.50 0.50
132: Hershal-----	35	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Too sandy Gravel content	1.00 1.00 0.50 0.01
Voats-----	30	Very limited Flooding Depth to saturated zone Seepage Large stones content Too sandy	1.00 1.00 1.00 0.50 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Seepage Large stones content Too sandy	1.00 0.50 0.50
Veazie-----	20	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 0.02
133: Howmeadows-----	50	Very limited Depth to saturated zone Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Depth to saturated zone Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Depth to saturated zone Too clayey	1.00 1.00 1.00
Wilkins-----	35	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
134: Hurwal-----	90	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
135: Hurwal-----	90	Somewhat limited Slope Too clayey	0.63 0.50	Somewhat limited Slope	0.63	Somewhat limited Slope Too clayey	0.63 0.50
136: Hurwal, deep-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.01	Very limited Slope Too clayey Depth to bedrock	1.00 0.50 0.01
137: Hurwal, deep-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.01	Very limited Slope Too clayey Depth to bedrock	1.00 0.50 0.01

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
138: Hurwal-----	90	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
139: Hurwal-----	90	Somewhat limited Slope Too clayey	0.63 0.50	Somewhat limited Slope	0.63	Somewhat limited Slope Too clayey	0.63 0.50
140: Hurwal-----	90	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
141: Imnaha-----	55	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
142: Imnaha-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Imhaha, moist-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.01	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage Gravel content Large stones content	1.00 1.00 0.52 0.02 0.01
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
143: Imnaha-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
Clearline-----	20	Very limited Slope Depth to bedrock Seepage Large stones content	1.00 1.00 1.00 0.09	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.08	Very limited Slope Seepage Gravel content Large stones content Depth to bedrock	1.00 0.52 0.25 0.09 0.08

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
144: Imnaha-----	45	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Cherrycreek-----	30	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Large stones Seepage Depth to bedrock Gravel content	1.00 1.00 0.52 0.18 0.11
Anatone-----	15	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
145: Imnaha-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Clearline-----	30	Very limited Slope Depth to bedrock Seepage Large stones content	1.00 1.00 1.00 0.09	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.08	Very limited Slope Seepage Gravel content Large stones content Depth to bedrock	1.00 0.52 0.25 0.09 0.08
Rock outcrop-----	15	Not rated		Not rated		Not rated	
146: Imnaha-----	45	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Cherrycreek-----	20	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Large stones Seepage Depth to bedrock Gravel content	1.00 1.00 0.52 0.18 0.11
147: Josset-----	85	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too sandy Seepage Gravel content Depth to saturated zone	1.00 1.00 0.84 0.09
148: Kahler-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.01
Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
149: Kahler-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.01
Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	10	Not rated		Not rated		Not rated	
150: Kahler-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.01
Linecreek-----	30	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
Getaway-----	20	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
151: Kahler-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.01
Linecreek-----	35	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
Getaway-----	15	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
152: Klicker-----	85	Very limited Depth to bedrock Large stones content Too clayey Slope	1.00 0.72 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Too clayey Slope	1.00 0.72 0.50 0.04
153: Klicker-----	85	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
154: Klicker-----	85	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
155: Klicker-----	85	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
156: Klicker-----	85	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
157: Klicker-----	50	Very limited Depth to bedrock Large stones content Too clayey Slope	1.00 0.72 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Too clayey Slope	1.00 0.72 0.50 0.04
Anatone-----	35	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04
158: Klicker-----	50	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
159: Klicker-----	50	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
160: Klicker-----	35	Very limited Depth to bedrock Large stones content Too clayey Slope	1.00 0.72 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones content Too clayey Slope	1.00 0.72 0.50 0.01
Fivebit-----	30	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Gravel content Slope	1.00 1.00 0.01
Anatone-----	20	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.01
161: Klicker-----	35	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Fivebit-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
162: Klicker-----	50	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Harlow-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
163: Klicker-----	40	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Kamela-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.18

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
163: Fivebit-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
164: Klicker-----	55	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.44	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 0.50 0.44
Olot-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
165: Klicker-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.44	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 0.50 0.44
Thirstygulch-----	30	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.50
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
166: Klicker-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.44	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 0.50 0.44
Thirstygulch-----	30	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.50
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
167: Klicker-----	40	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
167: Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
168: Klickson-----	35	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03
Anatone-----	25	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Larabee-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
169: Klickson-----	35	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03
Anatone-----	25	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Larabee-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
170: Klickson-----	60	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03
Larabee-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
171: Klickson-----	35	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03
Larabee-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171: Volstead-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey	1.00 0.61 0.50
172: Langrell-----	85	Very limited Seepage Large stones content	1.00 0.81	Very limited Seepage	1.00	Somewhat limited Large stones content Seepage Gravel content	0.81 0.52 0.05
173: Langrell-----	50	Very limited Seepage Large stones content	1.00 0.81	Very limited Seepage	1.00	Somewhat limited Large stones content Seepage Gravel content	0.81 0.52 0.05
Snow-----	35	Not limited		Not limited		Not limited	
174: Larabee-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Getaway-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
Klickson-----	20	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03
175: Larabee-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Klickson-----	30	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03
Volstead-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey	1.00 0.61 0.50
176: Larabee-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Klickson-----	30	Very limited Slope Large stones content Too clayey	1.00 0.79 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.79 0.50 0.03

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
176: Volstead-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey	1.00 0.61 0.50
177: Larabee-----	45	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
Melhorn-----	40	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01
178: Larabee-----	45	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Volstead-----	40	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey	1.00 0.61 0.50
179: Laufer-----	50	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.96 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.96 0.07 0.04
Thiessen-----	35	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.18 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.18 0.16 0.04
180: Laufer-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.96 0.07
Thiessen-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.18 0.16
181: Laufer-----	45	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.96 0.07

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
181: Thiessen-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.18 0.16
182: Laufer-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.96 0.07
Thiessen-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.18 0.16
Rock outcrop-----	15	Not rated		Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.04	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Depth to bedrock Too clayey Gravel content Large stones content	1.00 0.88 0.50 0.04 0.04
Lawyer-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.02	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Depth to bedrock Too clayey Gravel content Large stones content	1.00 0.88 0.50 0.04 0.02
Gwinly-----	25	Very limited Slope Depth to bedrock Too clayey Large stones	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones	1.00 1.00 1.00 1.00
184: Lickskillet-----	40	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.22
Dixiejett-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.94	Very limited Slope Gravel content Depth to bedrock	1.00 0.99 0.94
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
185: Lickskillet-----	40	Very limited Depth to bedrock Large stones Seepage Slope	1.00 1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones Seepage Slope	1.00 1.00 0.22 0.04
Doublecreek-----	25	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Rockly-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Gravel content Slope	1.00 0.68 0.07 0.04
186: Lickskillet-----	30	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.22
Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rockly-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.68 0.07
187: Limberjim-----	85	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 0.50 0.08 0.04	Somewhat limited Depth to bedrock Slope	0.99 0.04	Somewhat limited Depth to bedrock Too clayey Large stones content Slope	0.99 0.50 0.08 0.04
188: Limberjim-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.08	Very limited Slope Depth to bedrock	1.00 0.99	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.99 0.50 0.08
Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
189: Limberjim-----	60	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.08	Very limited Slope Depth to bedrock	1.00 0.99	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.99 0.50 0.08
Syrupcreek-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
190: Limberjim-----	70	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.08	Very limited Slope Depth to bedrock	1.00 0.99	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.99 0.50 0.08
Syrupcreek-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
191: Limberjim-----	45	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 0.50 0.08 0.01	Somewhat limited Depth to bedrock Slope	0.99 0.01	Somewhat limited Depth to bedrock Too clayey Large stones content Slope	0.99 0.50 0.08 0.01
Tamara-----	40	Somewhat limited Too clayey Slope	0.50 0.01	Very limited Seepage Slope	1.00 0.01	Somewhat limited Too clayey Slope	0.50 0.01
192: Linecreek-----	55	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
Getaway-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
193: Lookingglass-----	85	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Depth to saturated zone	1.00 0.68
194: Lookingglass-----	85	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.63	Very limited Depth to saturated zone Slope	1.00 0.63	Very limited Too clayey Depth to saturated zone Slope	1.00 0.68 0.63
195: Lookingglass, stony	85	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope	1.00 0.04	Very limited Too clayey Depth to saturated zone Slope	1.00 0.68 0.04
196: Lookingglass, cobbly	60	Very limited Depth to saturated zone Slope Too clayey	1.00 1.00 1.00	Very limited Slope Depth to saturated zone	1.00 1.00	Very limited Slope Too clayey Depth to saturated zone	1.00 1.00 0.68

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
196: Lookingglass-----	25	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope	1.00 0.04	Very limited Too clayey Depth to saturated zone Slope	1.00 0.68 0.04
197: Lookingglass-----	65	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope	1.00 0.04	Very limited Too clayey Depth to saturated zone Slope	1.00 0.68 0.04
Sopher-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
198: Lookingglass-----	65	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope	1.00 0.04	Very limited Too clayey Depth to saturated zone Slope	1.00 0.68 0.04
Sopher-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
199: Lostine-----	85	Very limited Seepage	1.00	Not limited		Not limited	
200: Mallory-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
Gwinly-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Lawyer-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.04	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Depth to bedrock Too clayey Gravel content Large stones content	1.00 0.88 0.50 0.04 0.04
201: Mallory-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
201: Gwinly-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
Lawyer-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.04	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Depth to bedrock Too clayey Gravel content Large stones content	1.00 0.88 0.50 0.04 0.04
202: Mallory-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.93	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.93 0.05
Lawyer-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.04	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Depth to bedrock Too clayey Gravel content Large stones content	1.00 0.88 0.50 0.04 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	
203: Matheny-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.66	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Depth to bedrock Large stones content	1.00 0.88 0.66
Linville-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Laufer-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.96	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.96 0.07
204: Matterhorn-----	85	Very limited Seepage Too sandy Large stones content	1.00 1.00 0.99	Very limited Seepage	1.00	Very limited Too sandy Seepage Large stones content Gravel content	1.00 1.00 0.99 0.01
205: Minam-----	85	Not limited		Not limited		Not limited	
206: Minam-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
207: Minam-----	85	Not limited		Not limited		Somewhat limited Gravel content	0.03
208: Minam-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Somewhat limited Slope Gravel content	0.63 0.03
209: Minam-----	90	Somewhat limited Slope Large stones content	0.04 0.01	Somewhat limited Slope	0.04	Somewhat limited Slope Large stones content	0.04 0.01
210: Minam-----	90	Somewhat limited Large stones content	0.01	Not limited		Somewhat limited Large stones content	0.01
211: Minam-----	90	Somewhat limited Slope Large stones content	0.63 0.01	Somewhat limited Slope	0.63	Somewhat limited Slope Large stones content	0.63 0.01
212: Minam-----	30	Not limited		Not limited		Not limited	
Minam, gravelly----	20	Not limited		Not limited		Somewhat limited Gravel content	0.03
Endoaquepts-----	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
213: Minam, gravelly----	30	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63
Minam, stony-----	25	Somewhat limited Slope Large stones content	0.63 0.01	Somewhat limited Slope	0.63	Somewhat limited Slope Large stones content	0.63 0.01
Endoaquepts-----	35	Very limited Depth to saturated zone Slope	1.00 0.63	Very limited Depth to saturated zone Slope	1.00 0.63	Very limited Depth to saturated zone Slope	1.00 0.63
214: Mippon-----	90	Very limited Depth to saturated zone Seepage Too sandy Flooding Large stones content	1.00 1.00 0.50 0.40 0.25	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Seepage Too sandy Large stones content Gravel content	1.00 0.50 0.25 0.17
215: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
216: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
217: Mountemily-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
218: Mountemily-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Troutmeadows-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Anatone, cold-----	25	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
219: Needhill-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Depth to bedrock Gravel content	1.00 0.18 0.01
Parsnip-----	25	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
Bocker-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
220: Needhill-----	45	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Seepage Depth to bedrock Slope	1.00 0.18 0.01	Somewhat limited Depth to bedrock Gravel content Slope	0.18 0.01 0.01
Zumwalt-----	40	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.01
221: Olot-----	85	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04
222: Olot-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
223: Olot-----	50	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04
Anatone-----	35	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04
224: Olot-----	50	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
Anatone-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
225: Parsnip-----	85	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
226: Parsnip-----	55	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.01
Bocker-----	30	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01
227: Phys-----	85	Very limited Large stones Seepage	1.00 1.00	Very limited Seepage	1.00	Very limited Large stones Seepage	1.00 0.52
228: Phys-----	40	Very limited Seepage Large stones content Slope	1.00 0.16 0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Seepage Large stones content Gravel content Slope	0.52 0.16 0.11 0.04
Doublecreek-----	30	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04
Collegecreek-----	20	Somewhat limited Slope	0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Slope	0.04
229: Phys-----	35	Very limited Slope Seepage Large stones content	1.00 1.00 0.16	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content Gravel content	1.00 0.52 0.16 0.11

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
229: Doublecreek-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Collegecreek-----	25	Very limited Slope	1.00	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00
230: Powwatka-----	85	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
231: Powwatka-----	85	Very limited Depth to bedrock Slope Too clayey	1.00 0.63 0.50	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Slope Too clayey	1.00 0.63 0.50
232: Powwatka-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
233: Powwatka-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
234: Puzzlecreek-----	85	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Gravel content	1.00 1.00 1.00 0.02
235: Ramo-----	85	Somewhat limited Too clayey	0.50	Not limited		Very limited Too clayey	1.00
236: Ramo-----	85	Somewhat limited Slope Too clayey	0.63 0.50	Somewhat limited Slope	0.63	Very limited Too clayey Slope	1.00 0.63
237: Ramo-----	85	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 1.00
238: Ramo-----	50	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Very limited Too clayey Slope	1.00 0.04
Conley-----	35	Very limited Depth to saturated zone Too clayey Slope	0.99 0.50 0.04	Somewhat limited Depth to saturated zone Slope	0.75 0.04	Somewhat limited Depth to saturated zone Too clayey Slope	0.86 0.50 0.04
239: Reavis-----	85	Very limited Seepage	1.00	Not limited		Somewhat limited Seepage	0.52

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
240: Redmount-----	85	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Gravel content Seepage	0.61 0.52
241: Redmount-----	85	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Gravel content Seepage	0.61 0.52
242: Redmount-----	85	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Gravel content Seepage	0.79 0.52
243: Redmount-----	50	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Gravel content Seepage	0.61 0.52
Cheval-----	35	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Seepage Depth to saturated zone Too sandy Gravel content	1.00 0.86 0.50 0.47
244: Riverwash-----	80	Not rated		Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Fivebit-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 1.00
247: Rock outcrop-----	35	Not rated		Not rated		Not rated	
Anatone-----	30	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
Imnaha-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
248: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
248: Imnaha-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
249: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Cherrycreek-----	20	Very limited Slope Depth to bedrock Large stones	1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 0.18	Very limited Slope Large stones Seepage Depth to bedrock Gravel content	1.00 1.00 0.52 0.18 0.11
250: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Linecreek-----	20	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
Anatone-----	15	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Too clayey	1.00 1.00 1.00 0.50
251: Rock outcrop-----	45	Not rated		Not rated		Not rated	
Rockly-----	25	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.68 0.07
Dixiejett-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.94	Very limited Slope Gravel content Depth to bedrock	1.00 0.99 0.94
252: Rockly-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.68 0.07
Rock outcrop-----	30	Not rated		Not rated		Not rated	
Copperfield-----	20	Very limited Slope Large stones content Too clayey	1.00 0.53 0.50	Very limited Slope	1.00	Very limited Slope Large stones content Too clayey Gravel content	1.00 0.53 0.50 0.01

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
253: Rockly-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.68	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.68 0.07
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Lickskillet-----	25	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.22
254: Rondowa-----	90	Very limited Seepage Large stones content	1.00 0.17	Very limited Seepage	1.00	Somewhat limited Seepage Large stones content	0.52 0.17
255: Rondowa-----	90	Very limited Seepage Slope Large stones content	1.00 0.63 0.17	Very limited Seepage Slope	1.00 0.63	Somewhat limited Slope Seepage Large stones content	0.63 0.52 0.17
256: Rondowa-----	90	Very limited Seepage Large stones content Slope	1.00 0.48 0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Seepage Large stones content Slope	0.52 0.48 0.04
257: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.48	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.48
258: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.48	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.48
259: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.48	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.48
260: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.48	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.48
261: Rondowa-----	90	Very limited Seepage Large stones content Slope	1.00 0.42 0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Seepage Large stones content Slope	0.52 0.42 0.04

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
262: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.42	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.42
263: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.42	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.42
264: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.42	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.42
265: Rondowa-----	90	Very limited Slope Seepage Large stones content	1.00 1.00 0.42	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones content	1.00 0.52 0.42
266: Rubble land-----	70	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
267: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
268: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
269: Sag-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
270: Schrier-----	85	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
271: Schrier-----	55	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Almota-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
272: Schrier-----	50	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Almota-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
273: Schuelke-----	55	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.37	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.37
Schrier-----	15	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Rockly-----	15	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.68	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.68 0.07
274: Silverlake-----	85	Very limited Seepage Depth to thin cemented pan	1.00 0.50	Somewhat limited Depth to cemented pan	0.96	Somewhat limited Depth to cemented pan	0.96
275: Slicklog-----	85	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.50
276: Slicklog-----	50	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.50
Eastpine-----	35	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.13	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.13 0.06
277: Slicklog-----	55	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.50
Eastpine-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.13	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Gravel content	1.00 1.00 0.13 0.06
Rock outcrop-----	10	Not rated		Not rated		Not rated	
278: Slicklog-----	50	Very limited Slope Seepage	1.00 1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.50
Wintercanyon-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.98
Rock outcrop-----	10	Not rated		Not rated		Not rated	



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279: Snell-----	85	Very limited Depth to bedrock Large stones Too clayey	1.00 1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Hard to compact Large stones Too clayey	1.00 1.00 1.00 0.50
280: Snell-----	65	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Hard to compact Large stones Too clayey Slope	1.00 1.00 1.00 0.50 0.04
Harlow-----	25	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04
281: Snell-----	60	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Harlow-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
282: Snell-----	50	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Harlow-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
283: Snell-----	55	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Harlow-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
284: Snell-----	65	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Hard to compact Large stones Too clayey Slope	1.00 1.00 1.00 0.50 0.01
Harlow-----	25	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.06 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.06 0.01
285: Snell-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Harlow-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Imnaha-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
286: Snell-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Harlow-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Imnaha-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
287: Snell-----	40	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
287: Harlow-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
Rock outcrop-----	15	Not rated		Not rated		Not rated	
288: Snell-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Hard to compact Large stones Too clayey	1.00 1.00 1.00 1.00 0.50
Imnaha-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.52
Rock outcrop-----	25	Not rated		Not rated		Not rated	
289: Snow-----	85	Not limited		Not limited		Not limited	
290: Sopher-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
291: Sopher-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
292: Sopher-----	60	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
Gwinly-----	25	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
293: Sopher-----	50	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
Gwinly-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
294: Sopher-----	50	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 0.88	Very limited Slope Too clayey Depth to bedrock Gravel content	1.00 1.00 0.88 0.37
Gwinly-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.99
295: Sturgill-----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
296: Sturgill-----	45	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
Eggleson-----	40	Very limited Depth to saturated zone Seepage Too sandy Flooding Large stones content	1.00 1.00 1.00 0.40 0.01	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Too sandy Seepage Gravel content Depth to saturated zone Large stones content	1.00 1.00 1.00 0.47 0.01
297: Sweitberg-----	85	Very limited Depth to bedrock Too clayey	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 1.00
298: Sweitberg-----	85	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.63	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.63
299: Sweiting-----	85	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04
300: Sweiting-----	85	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 1.00
301: Sweiting-----	50	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
301: Harlow-----	40	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04
302: Sweiting-----	50	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 1.00
Harlow-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
303: Sweiting-----	50	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 1.00
Klicker-----	40	Very limited Slope Depth to bedrock Large stones content Too clayey	1.00 1.00 0.72 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content Too clayey	1.00 1.00 0.72 0.50
304: Syrupcreek-----	85	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
305: Syrupcreek-----	60	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
Anatone-----	25	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones Too clayey Slope	1.00 1.00 0.50 0.01
306: Syrupcreek-----	60	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Lowerbluff-----	25	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Seepage Slope	1.00 0.52 0.04
307: Syrupcreek-----	55	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Tamara-----	30	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
308: Syrupcreek-----	65	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Tamara-----	20	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50
309: Tamara-----	65	Somewhat limited Too clayey Slope	0.50 0.01	Very limited Seepage Slope	1.00 0.01	Somewhat limited Too clayey Slope	0.50 0.01
Sherod-----	20	Very limited Depth to saturated zone Depth to bedrock Too clayey	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Depth to bedrock	1.00 1.00 1.00	Very limited Depth to bedrock Depth to saturated zone Too clayey	1.00 1.00 1.00 0.50
310: Tamara-----	45	Somewhat limited Too clayey Slope	0.50 0.01	Very limited Seepage Slope	1.00 0.01	Somewhat limited Too clayey Slope	0.50 0.01
Syrupcreek-----	40	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
311: Tamarackcanyon-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
Linecreek-----	25	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
Harlow-----	20	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
312: Tamarackcanyon-----	65	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.37 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.37 0.04
Lowerbluff-----	20	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Seepage Slope	1.00 0.52 0.04

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
313: Tamarackcanyon-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
Olot-----	25	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
Harlow-----	20	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
314: Tamarackcanyon-----	40	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
Olot-----	25	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
Harlow-----	20	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
315: Tannahill-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Large stones Depth to bedrock Too clayey	1.00 1.00 0.61 0.50
Schrier-----	35	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
316: Tannahill-----	35	Very limited Slope Depth to bedrock Large stones Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Large stones Depth to bedrock Too clayey	1.00 1.00 0.61 0.50
Schuelke-----	30	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.37

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
316: Lickskillet-----	25	Very limited Slope Depth to bedrock Large stones Seepage	1.00 1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones Seepage	1.00 1.00 1.00 0.22
317: Thiessen-----	85	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.18	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.18 0.16
318: Threebuck-----	70	Very limited Depth to bedrock Too clayey Slope Large stones content	1.00 1.00 0.04 0.01	Somewhat limited Depth to bedrock Slope	0.71 0.04	Very limited Too clayey Depth to bedrock Slope Large stones content	1.00 0.71 0.04 0.01
Harlow-----	15	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04
319: Threebuck-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.01	Very limited Slope Depth to bedrock	1.00 0.71	Very limited Slope Too clayey Depth to bedrock Large stones content	1.00 1.00 0.71 0.01
Linecreek-----	30	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
Harlow-----	20	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
320: Threebuck-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.01	Very limited Slope Depth to bedrock	1.00 0.71	Very limited Slope Too clayey Depth to bedrock Large stones content	1.00 1.00 0.71 0.01
Tamarackcanyon-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37



Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
321: Threebuck-----	50	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.01	Very limited Slope Depth to bedrock	1.00 0.71	Very limited Slope Too clayey Depth to bedrock Large stones content	1.00 1.00 0.71 0.01
Tamarackcanyon-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
322: Threebuck-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.01	Very limited Slope Depth to bedrock	1.00 0.71	Very limited Slope Too clayey Depth to bedrock Large stones content	1.00 1.00 0.71 0.01
Tamarackcanyon-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
Harlow-----	20	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.61	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content Gravel content	1.00 1.00 1.00 0.61 0.09
323: Threebuck-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.01	Very limited Slope Depth to bedrock	1.00 0.71	Very limited Slope Too clayey Depth to bedrock Large stones content	1.00 1.00 0.71 0.01
Tamarackcanyon-----	30	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 1.00 0.37	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 1.00 0.37
Linecreek-----	20	Very limited Slope Seepage Large stones content	1.00 1.00 0.74	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Gravel content Large stones content	1.00 1.00 0.86 0.74
324: Tippett-----	70	Very limited Depth to bedrock Too clayey	1.00 1.00	Somewhat limited Depth to bedrock	0.32	Very limited Too clayey Hard to compact Depth to bedrock	1.00 1.00 0.32

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
324: Harlow-----	20	Very limited Depth to bedrock Too clayey Large stones content	1.00 1.00 0.61	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Large stones content Gravel content	1.00 1.00 0.61 0.09
325: Tippett-----	70	Very limited Depth to bedrock Too clayey	1.00 1.00	Somewhat limited Depth to bedrock	0.32	Very limited Too clayey Hard to compact Depth to bedrock	1.00 1.00 0.32
Zumwalt-----	20	Very limited Depth to bedrock Too clayey	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 1.00
326: Tolo-----	85	Somewhat limited Too clayey Slope	0.50 0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Too clayey Slope	0.50 0.04
327: Tolo-----	85	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50
328: Tolo, fan-----	85	Somewhat limited Too clayey Slope	0.50 0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Too clayey Slope	0.50 0.04
329: Tolo-----	50	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50
Getaway-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
330: Tolo-----	50	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50
Getaway-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
331: Tolo-----	50	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50
Getaway-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
332: Tolo-----	50	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50
Getaway-----	35	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 1.00 0.50 0.30	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey Large stones content	1.00 0.61 0.50 0.30
333: Tolo-----	50	Somewhat limited Too clayey Slope	0.50 0.04	Very limited Seepage Slope	1.00 0.04	Somewhat limited Too clayey Slope	0.50 0.04
Olot-----	35	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04
334: Tolo-----	55	Very limited Slope Too clayey	1.00 0.50	Very limited Slope Seepage	1.00 1.00	Very limited Slope Too clayey	1.00 0.50
Olot-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
335: Topper-----	85	Not limited		Not limited		Not limited	
336: Topper-----	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63
337: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
338: Topper-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
339: Troutmeadows-----	65	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Crawfish-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.92 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Slope	1.00 0.92 0.04
340: Tuckerdowns-----	85	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Gravel content Seepage	1.00 0.52
341: Tuckerdowns-----	85	Very limited Seepage Slope	1.00 0.63	Very limited Seepage Slope	1.00 0.63	Very limited Gravel content Slope Seepage	1.00 0.63 0.52

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
342: Tuckerdowns-----	85	Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage	1.00 1.00	Very limited Slope Gravel content Seepage	1.00 1.00 0.52
343: Vandamine-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.09
Bordengulch-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.04
344: Vandamine-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Gravel content	1.00 0.09
Bordengulch-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.04
Rock outcrop-----	10	Not rated		Not rated		Not rated	
345: Veazie-----	85	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 0.02
346: Voats-----	50	Very limited Flooding Depth to saturated zone Seepage Large stones content Too sandy	1.00 1.00 1.00 0.50 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Seepage Large stones content Too sandy	1.00 0.50 0.50
Veazie-----	35	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too sandy Seepage Gravel content	1.00 1.00 0.02
347: Volstead-----	35	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.01	Somewhat limited Depth to bedrock Slope	0.61 0.01	Somewhat limited Depth to bedrock Too clayey Slope	0.61 0.50 0.01
Quirk-----	30	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Too clayey Hard to compact Slope	1.00 1.00 1.00 0.01
Bocker-----	20	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.99 0.01

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
348: Volstead-----	35	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Slope Depth to bedrock Too clayey	1.00 0.61 0.50
Quirk-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Hard to compact	1.00 1.00 1.00 1.00
Bocker-----	20	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.99	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.99
349: Wallowa-----	50	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Bocker-----	40	Very limited Depth to bedrock Large stones content	1.00 0.99	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Large stones content	1.00 0.99
350: Watama-----	85	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
351: Watama-----	85	Very limited Depth to bedrock Slope Too clayey	1.00 0.63 0.50	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Slope Too clayey	1.00 0.63 0.50
352: Watama-----	50	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.04
Rockly-----	35	Very limited Depth to bedrock Large stones content Slope	1.00 0.68 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Large stones content Gravel content Slope	1.00 0.68 0.07 0.04
353: Water-----	95	Not rated		Not rated		Not rated	
354: Wilkins-----	85	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
355: Wilkins-----	55	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00

Table 13b.--Sanitary Facilities (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
355: Feaginranch-----	30	Very limited Flooding Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 0.50
356: Wolot-----	85	Somewhat limited Slope	0.01	Very limited Seepage Slope	1.00 0.01	Somewhat limited Slope	0.01
357: Zumwalt-----	65	Very limited Depth to bedrock Too clayey	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 1.00
Harlow-----	25	Very limited Depth to bedrock Too clayey Large stones content	1.00 1.00 0.61	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Large stones content Gravel content	1.00 1.00 0.61 0.09
358: Zumwalt-----	65	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.63	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.63
Harlow-----	25	Very limited Depth to bedrock Too clayey Slope Large stones content	1.00 1.00 0.63 0.61	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Too clayey Slope Large stones content Gravel content	1.00 1.00 0.63 0.61 0.09
359: Zumwalt-----	65	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04
Harlow-----	20	Very limited Depth to bedrock Too clayey Large stones content Slope	1.00 1.00 0.61 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Large stones content Gravel content Slope	1.00 1.00 0.61 0.09 0.04

Table 14a.--Construction Materials (Part I)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for that layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the soil is a source of gravel, sand, and topsoil. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
2: Akerite-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.37
3: Albee-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope Depth to bedrock	0.96 0.99
Anatone-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
4: Albee-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope Depth to bedrock	0.96 0.99
Bocker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
5: Analulu-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.71
Slicklog-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.08

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5: Bluecanyon-----	30	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
6: Analulu-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.71
Slicklog-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
7: Anatone-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
Bocker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
8: Anatone-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Bocker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
9: Anatone-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Bocker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10: Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00
Bocker-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00
Fivebit-----	20	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.14	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Rock fragments Depth to bedrock	0.00 0.00
11: Anatone-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Bocker-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Fivebit-----	20	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.14	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
12: Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Cherrycreek-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Immaha-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13: Anatone-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Immaha-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Rock outcrop-----	10	Not rated		Not rated		Not rated	
14: Anatone-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Kamela-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.07
15: Anatone-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Klicker-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Rock outcrop-----	10	Not rated		Not rated		Not rated	
16: Anatone-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Linecreek-----	25	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17: Anatone-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Olot-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97
18: Anatone-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Clearline-----	15	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
19: Anatone-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Fivebit-----	20	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.14	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
20: Anatone-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Immaha-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21: Balm-----	50	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.12	Fair source Thickest layer possible source Bottom layer possible source	0.01 0.08	Poor Hard to reclaim (rock fragments) Wetness depth	0.00  0.14
Catherine-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.14	Poor Hard to reclaim (rock fragments) Wetness depth	0.00 0.32
22: Bittercreek-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Wetness depth Too sandy	0.00 0.00 0.00 0.00
Mippon-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Rock fragments Hard to reclaim (rock fragments) Too sandy	0.00 0.00 0.03
23: Bocker-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00
24: Bocker-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
Anatone-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
Rock outcrop-----	10	Not rated		Not rated		Not rated	
25: Bocker-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25: Anatone-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
26: Bocker-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Clearline-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
27: Bocker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Immaha-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Rock outcrop-----	15	Not rated		Not rated		Not rated	
28: Bridgewater-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00
29: Btree-----	45	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.87

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
29: Flycreek-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.88 0.99
30: Btree-----	45	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.87
Flycreek-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.88 0.99
31: Btree-----	30	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.87
Flycreek-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.88 0.99
Anatone-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
32: Btree-----	30	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.87
Flycreek-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.88 0.99

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32: Anatone-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
33: Btree-----	40	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.87
Klicker-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
34: Bucketlake-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer is possible source Thickest layer possible source	0.06 0.06	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
35: Bucketlake-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.06 0.06	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
36: Buford-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.96
Anatone-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
37: Buford-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.96
Bocker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
38: Bunchpoint-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Rock fragments	0.79 0.88
39: Bunchpoint-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Rock fragments	0.79 0.88
Bocker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00
40: Chard-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
41: Cherrycreek-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.96
Imnaha-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Rock fragments Slope	0.10 0.12 0.96
42: Cherrycreek-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Imnaha-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Imnaha, moist-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
43: Cherrycreek-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Imnaha-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Rock outcrop-----	10	Not rated		Not rated		Not rated	
44: Cherrycreek-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Limberjim-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.06
Rock outcrop-----	10	Not rated		Not rated		Not rated	
45: Chesnimnus-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Hard to reclaim (rock fragments) Too clayey	0.00 0.70
46: Chesnimnus-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Hard to reclaim (rock fragments) Too clayey	0.00 0.70

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
47: Cheval-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.10	Poor Hard to reclaim (rock fragments) Wetness depth	0.00  0.53
48: Cloverland-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth	0.76
49: Cloverland-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope Wetness depth	0.37 0.76
50: Conley-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Hard to reclaim (rock fragments) Wetness depth	0.00 0.08 0.53
51: Conley-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Hard to reclaim (rock fragments) Wetness depth	0.00 0.08 0.53
52: Copperfield-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Thiessen-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.00 0.84
53: Copperfield-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53: Thiessen-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.00 0.84
Rock outcrop-----	15	Not rated		Not rated		Not rated	
54: Cowsly-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Wetness depth	0.53
55: Cowsly-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Slope Wetness depth	0.37 0.53
56: Cowsly-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Wetness depth Slope	0.53 0.96
57: Cowsly, cobbly----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Wetness depth	0.00 0.53
Cowsly-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Wetness depth Slope	0.53 0.96
58: Cowsly, cobbly----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Wetness depth	0.00 0.53
Cowsly-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Wetness depth Slope	0.53 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59: Cowsly-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth Slope	0.53 0.96
Howmeadows-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Wetness depth Too clayey Depth to bedrock	0.00 0.00 0.21
Sherod-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock Rock fragments Wetness depth	0.00 0.00 0.04
60: Demasters-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.88
Snell-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
61: Dixiejett-----	35	Fair Thickest layer a possible source Bottom layer possible source	0.14 0.38	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
Licksillet-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rockly-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
62: Doublecreek-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.01 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.50 0.93

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
62: Flybow-----	30	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
63: Doublecreek-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.01 0.01	Fair Hard to reclaim (rock fragments) Rock fragments Slope	0.50  0.93 0.96
Langrell-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00  0.00
64: Doublecreek-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.01 0.01	Fair Hard to reclaim (rock fragments) Rock fragments Slope	0.50  0.93 0.96
Phys-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00  0.00 0.96
65: Downards-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66: Downards-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Emily-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Sopher-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
67: Downards-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Klicker-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
68: Downards-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Klicker-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
69: Downeygulch-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Rock fragments	0.10 0.12

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
69: Lowerbluff-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.01	Poor Depth to bedrock Rock fragments	0.00 0.00
70: Downeygulch-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Thirstygulch-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
71: Eggleson-----	85	Fair Bottom layer possible source Thickest layer a possible source	0.14 0.14	Fair source Bottom layer possible source Thickest layer possible source	0.14 0.14	Poor Too sandy Hard to reclaim (rock fragments) Rock fragments Wetness depth	0.00 0.00 0.00 0.89
72: Emily-----	55	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Wolot-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
73: Endoaquolls, mesic	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Wetness depth	0.00 0.00 0.00
74: Ferguson-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.25	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.21	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.87 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75: Ferguson-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Fair source Thickest layer not a source Bottom layer possible source	0.00  0.21	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00  0.00  0.87
76: Ferguson-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Fair source Thickest layer not a source Bottom layer possible source	0.00  0.21	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00  0.00  0.87
77: Ferguson-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Fair source Thickest layer not a source Bottom layer possible source	0.00  0.21	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00  0.00  0.87
78: Ferguson-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Fair source Thickest layer not a source Bottom layer possible source	0.00  0.21	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00  0.00  0.87
79: Flybow-----	40	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.12	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Slope Rock fragments Depth to bedrock	0.00  0.00  0.00
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
80: Flybow-----	40	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.12	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Slope Rock fragments Depth to bedrock	0.00  0.00  0.00
Rubble land-----	30	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81: Flycreek-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Slope Depth to bedrock	0.00 0.88 0.96 0.99
Flyvalley-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock Slope Rock fragments	0.00 0.96 0.98
82: Freels-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
83: Geisercreek-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.88
84: Gelsinger-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Too clayey	0.07
85: Gelsinger-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Too clayey Slope	0.07 0.37
86: Getaway-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
87: Getaway-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88: Getaway-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
89: Getaway-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
90: Getaway-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
91: Getaway-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Harlow-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91: Rock outcrop-----	15	Not rated		Not rated		Not rated	
92: Getaway-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Linecreek-----	30	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
93: Getaway-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Snell-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
94: Gwin-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Kettenbach-----	20	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.10
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95: Gwin-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Kettenbach-----	20	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.10
Rock outcrop-----	10	Not rated		Not rated		Not rated	
96: Gwin-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Klickson-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Kettenbach-----	20	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.10
97: Gwinly-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Kettenbach-----	35	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.10
Rock outcrop-----	10	Not rated		Not rated		Not rated	
98: Gwinly-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
98: Mallory-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Slope Depth to bedrock	0.00 0.00 0.00 0.21
99: Gwinly-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Mallory-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21
100: Gwinly-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Mallory-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21
Kettenbach-----	25	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.10
101: Gwinly-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Mallory-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101: Kettenbach-----	25	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.10
102: Gwinly-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Mallory-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21
Kettenbach-----	25	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.10
103: Gwinly-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Mallory-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21
Rock outcrop-----	25	Not rated		Not rated		Not rated	
104: Gwinly-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96
Rockly-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
105: Gwinly-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Rockly-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
106: Gwinly-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Sopher-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
107: Gwinly-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Sopher-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
Rock outcrop-----	10	Not rated		Not rated		Not rated	
108: Hapludolls, frigid	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.10	Poor Rock fragments Hard to reclaim (rock fragments) Wetness depth	0.00 0.50 0.89

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
108:							
Endoaquolls, frigid	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00 0.00	Poor Wetness depth Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Endoaquents, frigid	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00 0.00	Poor Wetness depth Rock fragments Hard to reclaim (rock fragments) Too sandy	0.00 0.00 0.00 0.14
109:							
Harl-----	40	Poor Thickest layer a possible source Bottom layer possible source	0.06 0.06 0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
110:							
Harl-----	45	Poor Thickest layer a possible source Bottom layer possible source	0.06 0.06 0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
111:							
Harl-----	45	Poor Thickest layer a possible source Bottom layer possible source	0.06 0.06 0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
111: Getaway-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
112: Harl-----	50	Poor Thickest layer a possible source Bottom layer possible source	0.06 0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Limberjim-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.06
Rock outcrop-----	10	Not rated		Not rated		Not rated	
113: Harlow-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96
Bocker-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
114: Harlow-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Bocker-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
115: Harlow-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
115: Bocker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
116: Harlow-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96
Bocker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
117: Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Bocker-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
118: Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96
Immaha-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Rock fragments Slope	0.10 0.12 0.96
Rock outcrop-----	10	Not rated		Not rated		Not rated	
119: Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119: Imnaha-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Rock outcrop-----	10	Not rated		Not rated		Not rated	
120: Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Imnaha-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Rock outcrop-----	10	Not rated		Not rated		Not rated	
121: Harlow-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Klicker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
122: Harlow-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Klicker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
123: Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
123: Snell-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Rock fragments Too clayey Depth to bedrock Slope	0.00 0.07 0.10 0.96
Imnaha-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Depth to bedrock Rock fragments Slope	0.10 0.12 0.96
124: Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Snell-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Imnaha-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
125: Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Snell-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Imnaha-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
126: Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Snell-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Rock outcrop-----	25	Not rated		Not rated		Not rated	
127: Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Tamarackcanyon-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
Linecreek-----	20	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
128: Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Tamarackcanyon-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
128: Olot-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97
129: Harlow-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Threebuck-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.50
130: Hershal-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.08 0.00	Poor Rock fragments Wetness depth Hard to reclaim (rock fragments) Too sandy	0.00 0.00 0.08 0.25
131: Hershal-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.08 0.00	Poor Rock fragments Wetness depth Hard to reclaim (rock fragments) Too sandy	0.00 0.00 0.08 0.25
Voats-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00 0.00	Poor Too sandy Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
132: Hershal-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.08 0.00	Poor Rock fragments Wetness depth Hard to reclaim (rock fragments) Too sandy	0.00 0.00 0.08 0.25

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132: Voats-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00 0.00	Poor Too sandy Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Veazie-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.43 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.98
133: Howmeadows-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Wetness depth Too clayey Depth to bedrock	0.00 0.00 0.21
Wilkins-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Wetness depth	0.04
134: Hurwal-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Good	
135: Hurwal-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Slope	0.37
136: Hurwal, deep-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope	0.00
137: Hurwal, deep-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope	0.00
138: Hurwal-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Good	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
139: Hurwal-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.37
140: Hurwal-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
141: Immaha-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
142: Immaha-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Imhaha, moist-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
143: Immaha-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Bocker-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
143: Clearline-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
144: Imnaha-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Cherrycreek-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
145: Imnaha-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Clearline-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
146: Imnaha-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Cherrycreek-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
147: Josset-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Fair source Thickest layer possible source Bottom layer possible source	0.01 0.64	Poor Too sandy Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
148: Kahler-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.68 0.88
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
149: Kahler-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.68 0.88
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
150: Kahler-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.68 0.88
Linecreek-----	30	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
150: Getaway-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
151: Kahler-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.68 0.88
Linecreek-----	35	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Getaway-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
152: Klicker-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.16 0.96
153: Klicker-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
154: Klicker-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
155: Klicker-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156: Klicker-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
157: Klicker-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.16 0.96
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
158: Klicker-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
159: Klicker-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
160: Klicker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.16
Fivebit-----	30	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.14	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Rock fragments Depth to bedrock	0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
160: Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00
161: Klicker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Fivebit-----	30	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.14	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
162: Klicker-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
163: Klicker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Kamela-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.07
Fivebit-----	15	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.14	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
164: Klicker-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Olot-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97
165: Klicker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Thirstygulch-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
166: Klicker-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Thirstygulch-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
167: Klicker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
167: Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
168: Klickson-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Larabee-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
169: Klickson-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Larabee-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
170: Klickson-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
170: Larabee-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
171: Klickson-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Larabee-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Volstead-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Hard to reclaim (rock fragments)	0.00 0.06 0.12 0.92
172: Langrell-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
173: Langrell-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Snow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Good	
174: Larabee-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
174: Getaway-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Klickson-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
175: Larabee-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Klickson-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Volstead-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Hard to reclaim (rock fragments)	0.00 0.06 0.12 0.92
176: Larabee-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Klickson-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Volstead-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Hard to reclaim (rock fragments)	0.00 0.06 0.12 0.92

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
177: Larabee-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00  0.00
Melhorn-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
178: Larabee-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Volstead-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Hard to reclaim (rock fragments)	0.00 0.06 0.12 0.92
179: Laufer-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Too clayey Slope	0.00 0.00 0.00 0.96
Thiessen-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Too clayey Depth to bedrock Slope	0.00 0.00 0.84 0.96
180: Laufer-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock Too clayey	0.00 0.00 0.00 0.00
Thiessen-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.00 0.84

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
181: Laufer-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock Too clayey	0.00 0.00 0.00 0.00
Thiessen-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.00 0.84
182: Laufer-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock Too clayey	0.00 0.00 0.00 0.00
Thiessen-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.00 0.84
Rock outcrop-----	15	Not rated		Not rated		Not rated	
183: Lawyer, stony-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too clayey	0.00 0.00 0.00 0.83
Lawyer-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too clayey	0.00 0.00 0.00 0.83
Gwinly-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
184: Lickskillet-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Dixiejett-----	25	Fair Thickest layer a possible source Bottom layer possible source	0.14 0.38	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
185: Lickskillet-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
Doublecreek-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.01 0.01	Fair Hard to reclaim (rock fragments) Rock fragments Slope	0.50 0.93 0.96
Rockly-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
186: Lickskillet-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Doublecreek-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.01 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.50 0.93
Rockly-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187: Limberjim-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.06 0.96
188: Limberjim-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.06
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
189: Limberjim-----	60	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.06
Syrupcreek-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.36 0.46
190: Limberjim-----	70	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.06
Syrupcreek-----	15	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.36 0.46
191: Limberjim-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.06

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
191: Tamara-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
192: Linecreek-----	55	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Getaway-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
193: Lookingglass-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth	0.76
194: Lookingglass-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope Wetness depth	0.37 0.76
195: Lookingglass, stony	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth Slope Rock fragments	0.76 0.96 0.99
196: Lookingglass, cobbly-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Wetness depth Rock fragments	0.00 0.76 0.81
Lookingglass-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth Slope	0.76 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
197: Lookingglass-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth Slope	0.76 0.96
Sopher-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
198: Lookingglass-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth Slope	0.76 0.96
Sopher-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
199: Lostine-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Poor Thickest layer not a source Bottom layer possible source	0.00 0.04	Good	
200: Mallory-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21
Gwinly-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Lawyer-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too clayey	0.00 0.00 0.00 0.83

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
201: Mallory-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21
Gwinly-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Lawyer-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too clayey	0.00 0.00 0.00 0.83
202: Mallory-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.21
Lawyer-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too clayey	0.00 0.00 0.00 0.83
Rock outcrop-----	10	Not rated		Not rated		Not rated	
203: Matheny-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Linville-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.50



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
203: Laufer-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Slope Rock fragments Depth to bedrock Too clayey	0.00 0.00 0.00 0.00
204: Matterhorn-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Hard to reclaim (rock fragments) Rock fragments Too sandy No carbonate limitation	0.00  0.00 0.18 0.99
205: Minam-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00  0.88
206: Minam-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Hard to reclaim (rock fragments) Slope Rock fragments	0.00  0.37 0.88
207: Minam-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00  0.00
208: Minam-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00  0.00 0.37
209: Minam-----	90	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00  0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00  0.47 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
210: Minam-----	90	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00  0.88
211: Minam-----	90	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Slope Rock fragments	0.00  0.37 0.88
212: Minam-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00  0.88
Minam, gravelly----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00  0.00
Endoaquepts-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Wetness depth	0.00
213: Minam, gravelly----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00  0.12 0.37
Minam, stony-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.06	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Slope Rock fragments	0.00  0.37 0.88
Endoaquepts-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Wetness depth Slope	0.00 0.37

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
214: Mippon-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Rock fragments Hard to reclaim (rock fragments) Too sandy	0.00 0.00 0.03
215: Mountemily-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.32
Troutmeadows-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.65
216: Mountemily-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.32
Troutmeadows-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.65
217: Mountemily-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.32
Troutmeadows-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.65
218: Mountemily-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.32

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
218: Troutmeadows-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.65
Anatone, cold-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
219: Needhill-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Parsnip-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.00 0.00
Bocker-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
220: Needhill-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Zumwalt-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Too clayey Depth to bedrock	0.00 0.00 0.97
221: Olot-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Rock fragments Slope Depth to bedrock	0.11 0.96 0.97
222: Olot-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
223: Olot-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Rock fragments Slope Depth to bedrock	0.11 0.96 0.97
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
224: Olot-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97
Anatone-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
225: Parsnip-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Depth to bedrock	0.00
226: Parsnip-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Depth to bedrock Rock fragments	0.00 0.00
Bocker-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00
227: Phys-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00
228: Phys-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
228: Doublecreek-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.01 0.01	Fair Hard to reclaim (rock fragments) Rock fragments Slope	0.50 0.93 0.96
Collegecreek-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.96
229: Phys-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Doublecreek-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.01 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.50 0.93
Collegecreek-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
230: Powwatka-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock	0.10
231: Powwatka-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Slope	0.10 0.37
232: Powwatka-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock	0.00 0.10

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
233: Powwatka-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock	0.00 0.10
234: Puzzlecreek-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.99
235: Ramo-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00
236: Ramo-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Too clayey Hard to reclaim (rock fragments) Slope	0.00 0.00 0.00 0.37
237: Ramo-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.00
238: Ramo-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Too clayey Hard to reclaim (rock fragments) Slope	0.00 0.00 0.00 0.96
Conley-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Hard to reclaim (rock fragments) Wetness depth Slope	0.00 0.08 0.53 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
239: Reavis-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.12	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments)	0.00
240: Redmount-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.38	Poor Thickest layer possible source Bottom layer possible source	0.03 0.04	Poor Hard to reclaim (rock fragments)	0.00
241: Redmount-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.38	Poor Thickest layer possible source Bottom layer possible source	0.03 0.04	Poor Hard to reclaim (rock fragments)	0.00
242: Redmount-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.38	Poor Thickest layer possible source Bottom layer possible source	0.03 0.04	Poor Hard to reclaim (rock fragments)	0.00
243: Redmount-----	50	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.38	Poor Thickest layer possible source Bottom layer possible source	0.03 0.04	Poor Hard to reclaim (rock fragments)	0.00
Cheval-----	35	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.25	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.10	Poor Hard to reclaim (rock fragments) Wetness depth	0.00  0.53
244: Riverwash-----	80	Not rated		Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
246: Fivebit-----	15	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00  0.14	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
247: Rock outcrop-----	35	Not rated		Not rated		Not rated	
Anatone-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Imnaha-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
248: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Anatone-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Imnaha-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
249: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Imnaha-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Cherrycreek-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
250: Rock outcrop-----	50	Not rated		Not rated		Not rated	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
250: Linecreek-----	20	Fair Thickest layer a possible source Bottom layer possible source	0.11  0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Anatone-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
251: Rock outcrop-----	45	Not rated		Not rated		Not rated	
Rockly-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Dixiejett-----	20	Fair Thickest layer a possible source Bottom layer possible source	0.14  0.38	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
252: Rockly-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	30	Not rated		Not rated		Not rated	
Copperfield-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
253: Rockly-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Lickskillet-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00  0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
254: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00
255: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.37
256: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.96
257: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
258: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
259: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
260: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
261: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.96
262: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
263: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
264: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
265: Rondowa-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
266: Rubble land-----	70	Not rated		Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated		Not rated	
267: Sag-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
268: Sag-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
269: Sag-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
270: Schrier-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
271: Schrier-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Almota-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.98 0.99
272: Schrier-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Almota-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.98 0.99
Rock outcrop-----	10	Not rated		Not rated		Not rated	
273: Schuelke-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Slope Depth to bedrock	0.00 0.00 0.79
Schrier-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Rockly-----	15	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
274: Silverlake-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.10	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00
275: Slicklog-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.08
276: Slicklog-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.08
Eastpine-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments	0.00 0.00
277: Slicklog-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.08
Eastpine-----	20	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments	0.00 0.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	
278: Slicklog-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.08
Wintercanyon-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279: Snell-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Rock fragments Too clayey Depth to bedrock	0.00 0.07 0.10
280: Snell-----	65	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Rock fragments Too clayey Depth to bedrock Slope	0.00 0.07 0.10 0.96
Harlow-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96
281: Snell-----	60	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Harlow-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
282: Snell-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
283: Snell-----	55	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
283: Harlow-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
284: Snell-----	65	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Too clayey Depth to bedrock	0.00 0.07 0.10
Harlow-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00
285: Snell-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Harlow-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Imnaha-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
286: Snell-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Harlow-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
286: Immaha-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
287: Snell-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Harlow-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
288: Snell-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.07 0.10
Immaha-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.10 0.12
Rock outcrop-----	25	Not rated		Not rated		Not rated	
289: Snow-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
290: Sopher-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
291: Sopher-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
292: Sopher-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
Gwinly-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
293: Sopher-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
Gwinly-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
294: Sopher-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.08
Gwinly-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
295: Sturgill-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Wetness depth	0.00
296: Sturgill-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Wetness depth	0.00
Eggleson-----	40	Fair Bottom layer possible source Thickest layer a possible source	0.14 0.14	Fair source Bottom layer possible source Thickest layer possible source	0.14 0.14	Poor Too sandy Hard to reclaim (rock fragments) Rock fragments Wetness depth	0.00 0.00 0.00 0.89
297: Sweitberg-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Rock fragments	0.90 0.98
298: Sweitberg-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope Depth to bedrock Rock fragments	0.37 0.90 0.98
299: Sweiting-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.12 0.79 0.96
300: Sweiting-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.12 0.79
301: Sweiting-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.12 0.79 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
301: Harlow-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96
302: Sweiting-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.12 0.79
Harlow-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
303: Sweiting-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.12 0.79
Klicker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.16
304: Syrupcreek-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Rock fragments Depth to bedrock	0.36 0.46
305: Syrupcreek-----	60	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Rock fragments Depth to bedrock	0.36 0.46
Anatone-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
306: Syrupcreek-----	60	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Rock fragments Depth to bedrock Slope	0.36 0.46 0.96
Lowerbluff-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.01 0.00	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.96
307: Syrupcreek-----	55	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.36 0.46
Tamara-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope	0.00
308: Syrupcreek-----	65	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.36 0.46
Tamara-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope	0.00
309: Tamara-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Good	
Sherod-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Depth to bedrock Rock fragments Wetness depth	0.00 0.00 0.04
310: Tamara-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Good	

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
310: Syrupcreek-----	40	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Rock fragments Depth to bedrock	0.36 0.46
311: Tamarackcanyon-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
Linecreek-----	25	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Harlow-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
312: Tamarackcanyon-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Hard to reclaim (rock fragments) Too clayey Rock fragments Slope	0.00 0.00 0.00 0.96
Lowerbluff-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.01	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.96
313: Tamarackcanyon-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
Olot-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
313: Harlow-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
314: Tamarackcanyon----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
Olot-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97
Harlow-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00
315: Tannahill-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
Schrier-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
316: Tannahill-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
Schuelke-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.79

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
316: Licksillet-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
317: Thiessen-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.00 0.84
318: Threebuck-----	70	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Rock fragments Too clayey Hard to reclaim (rock fragments) Slope	0.00 0.00 0.50 0.96
Harlow-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96
319: Threebuck-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.50
Linecreek-----	30	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Harlow-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
320: Threebuck-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.50
Tamarackcanyon----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
321: Threebuck-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.50
Tamarackcanyon----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
322: Threebuck-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.50
Tamarackcanyon----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
Harlow-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
323: Threebuck-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.50
Tamarackcanyon----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Too clayey Rock fragments	0.00 0.00 0.00 0.00
Linecreek-----	20	Fair Thickest layer a possible source Bottom layer possible source	0.11 0.29	Poor Bottom layer not a source Thickest layer possible source	0.00 0.01	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
324: Tippett-----	70	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey	0.00
Harlow-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00
325: Tippett-----	70	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey	0.00
Zumwalt-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Depth to bedrock	0.00 0.97
326: Tolo-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
327: Tolo-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
328: Tolo, fan-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Hard to reclaim (rock fragments) Slope	0.50 0.96
329: Tolo-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Getaway-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
330: Tolo-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Getaway-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
331: Tolo-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Getaway-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
332: Tolo-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Getaway-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
333: Tolo-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.96
Olot-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Rock fragments Slope Depth to bedrock	0.11 0.96 0.97
334: Tolo-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
Olot-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.11 0.97
335: Topper-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
336: Topper-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope	0.37
337: Topper-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
338: Topper-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope	0.00
339: Troutmeadows-----	65	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.65 0.96
Crawfish-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96
340: Tuckerdowns-----	85	Fair Thickest layer a possible source Bottom layer possible source	0.25 0.31	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00
341: Tuckerdowns-----	85	Fair Thickest layer a possible source Bottom layer possible source	0.25 0.31	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.37
342: Tuckerdowns-----	85	Fair Thickest layer a possible source Bottom layer possible source	0.25 0.31	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
343: Vandamine-----	60	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.88
Bordengulch-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.95

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
344: Vandamine-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.88
Bordengulch-----	25	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.95
Rock outcrop-----	10	Not rated		Not rated		Not rated	
345: Veazie-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.43 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.98
346: Voats-----	50	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Poor Thickest layer not a source Bottom layer not a source	0.00 0.00 0.00	Poor Too sandy Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Veazie-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00 0.00	Fair source Thickest layer not a source Bottom layer possible source	0.00 0.43 0.00	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.98
347: Volstead-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Fair Too clayey Rock fragments Hard to reclaim (rock fragments)	0.06 0.12 0.92
Quirk-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.99 0.99
Bocker-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00 0.00

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
348: Volstead-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Rock fragments Hard to reclaim (rock fragments)	0.00 0.06 0.12 0.92
Quirk-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Too clayey Depth to bedrock Rock fragments	0.00 0.00 0.99 0.99
Bocker-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.00
349: Wallowa-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Rock fragments Slope	0.46 0.88 0.96
Bocker-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock	0.00 0.00
350: Watama-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock	0.16
351: Watama-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Slope	0.16 0.37
352: Watama-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock Slope	0.16 0.96
Rockly-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragments Depth to bedrock Slope	0.00 0.00 0.96

Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
353: Water-----	95	Not rated		Not rated		Not rated	
354: Wilkins-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth	0.04
355: Wilkins-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness depth	0.04
Feaginranch-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Wetness depth Too clayey	0.00 0.88
356: Wolot-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
357: Zumwalt-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Depth to bedrock	0.00 0.97
Harlow-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock	0.00 0.00 0.00
358: Zumwalt-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Slope Depth to bedrock	0.00 0.37 0.97
Harlow-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.37



Table 14a.--Construction Materials (Part I)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
359: Zumwalt-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Slope Depth to bedrock	0.00 0.96 0.97
Harlow-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Too clayey Rock fragments Depth to bedrock Slope	0.00 0.00 0.00 0.96

The interpretations for gravel evaluate coarse fragments more than 0.2 inch in diameter in the bottom or thickest layer of the soil.

The interpretations for sand evaluate the amount of sand and fine gravel in the thickest or bottom layer of the soil. Organic soil layers with a Unified engineering class for peat (PT) are also evaluated.

The interpretations for topsoil evaluate the following soil properties at various depths: Calcium carbonates, clay content, soil bulk density, sand content, soil wetness, coarse fragments 0.2 to 3.0 inches in diameter, fragments more than 3 inches in diameter, organic matter content (OM), sodium content expressed as the sodium adsorption ratio (SAR), salinity expressed as dS/m of electrical conductivity (EC), depth to bedrock, slope, and soil pH.

Table 14b.--Construction Materials (Part II)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Poor Wind erosion Low organic matter content Water erosion Too acid	0.00 0.88 0.90 0.95	Poor Low strength Shrink-swell	0.00 0.99
2: Akerite-----	85	Poor Wind erosion Low organic matter content Water erosion Too acid	0.00 0.88 0.90 0.95	Poor Low strength Shrink-swell	0.00 0.99
3: Albee-----	45	Fair Water erosion Depth to bedrock	0.90 0.99	Poor Depth to bedrock	0.00
Anatone-----	40	Poor Stone content Depth to bedrock Droughty Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	0.00 0.71 0.95
4: Albee-----	50	Fair Water erosion Depth to bedrock	0.90 0.99	Poor Depth to bedrock	0.00
Bocker-----	40	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
5: Analulu-----	30	Poor Wind erosion Droughty Depth to bedrock Too acid	0.00 0.00 0.65 0.95	Poor Depth to bedrock Slope	0.00 0.00
Slicklog-----	30	Fair Stone content Low organic matter content Too acid	0.48 0.88 0.95	Poor Slope	0.00
Bluecanyon-----	30	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.00
6: Analulu-----	40	Poor Wind erosion Droughty Depth to bedrock Too acid	0.00 0.00 0.65 0.95	Poor Depth to bedrock Slope	0.00 0.00

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
6: Slicklog-----	35	Fair Stone content Low organic matter content Too acid	0.48 0.88 0.95	Poor Slope	0.00
Rock outcrop-----	10	Not rated		Not rated	
7: Anatone-----	50	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	0.00 0.71 0.95
Bocker-----	35	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
8: Anatone-----	50	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.08 0.71 0.95
Bocker-----	35	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.88
9: Anatone-----	50	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
Bocker-----	35	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.88
10: Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	0.00 0.71 0.95
Bocker-----	30	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
Fivebit-----	20	Poor Droughty Depth to bedrock Low organic matter content	0.00 0.00 0.50	Poor Depth to bedrock	0.00
11: Anatone-----	40	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
11: Bocker-----	25	Poor Droughty Depth to bedrock Cobble content	 0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	 0.00 0.00 0.88
Fivebit-----	20	Poor Droughty Depth to bedrock Low organic matter content	 0.00 0.00 0.50	Poor Depth to bedrock Slope	 0.00 0.00
12: Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Cherrycreek-----	30	Poor Stone content Cobble content Droughty	 0.00 0.44 0.99	Poor Slope Cobble content Stone content Depth to bedrock	 0.00 0.00 0.00 0.82
Imnaha-----	20	Fair Depth to bedrock Droughty	 0.10 0.61	Poor Depth to bedrock Slope	 0.00 0.00
13: Anatone-----	40	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Imnaha-----	35	Fair Depth to bedrock Droughty	 0.10 0.61	Poor Depth to bedrock Slope	 0.00 0.00
Rock outcrop-----	10	Not rated		Not rated	
14: Anatone-----	45	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Kamela-----	40	Poor Droughty Depth to bedrock Cobble content Low organic matter content Too acid	 0.00 0.03 0.82 0.88 0.95	Poor Depth to bedrock Slope Cobble content	 0.00 0.00 0.72
15: Anatone-----	50	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
15: Klicker-----	30	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.29 0.87
Rock outcrop-----	10	Not rated		Not rated	
16: Anatone-----	50	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Linecreek-----	25	Fair Stone content Cobble content Low organic matter content	 0.64 0.86 0.88	Poor Slope Cobble content Stone content	 0.00 0.01 0.71
Rock outcrop-----	10	Not rated		Not rated	
17: Anatone-----	50	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Olot-----	35	Poor Wind erosion Depth to bedrock Water erosion Too acid	 0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	 0.00 0.00 0.94
18: Anatone-----	45	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Rock outcrop-----	25	Not rated		Not rated	
Clearline-----	15	Fair Low organic matter content Stone content	 0.88  0.92	Poor Slope Cobble content Depth to bedrock Stone content	 0.00 0.83 0.92 0.98
19: Anatone-----	40	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Rock outcrop-----	25	Not rated		Not rated	
Fivebit-----	20	Poor Droughty Depth to bedrock Low organic matter content	 0.00 0.00 0.50	Poor Depth to bedrock Slope	 0.00 0.00

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
20: Anatone-----	40	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
Rock outcrop-----	25	Not rated		Not rated	
Imnaha-----	20	Fair Depth to bedrock Droughty	 0.10 0.61	Poor Depth to bedrock Slope	 0.00 0.00
21: Balm-----	50	Fair Low organic matter content Droughty Water erosion	 0.12 0.98 0.99	Fair Wetness depth	 0.14
Catherine-----	40	Fair Water erosion	 0.99	Poor Low strength Wetness depth	 0.00 0.32
22: Bittercreek-----	65	Poor Too sandy Low organic matter content Cobble content Water erosion Droughty	 0.00 0.88 0.89 0.90 0.96	Poor Wetness depth Cobble content	 0.00 0.65
Mippon-----	20	Poor Low organic matter content Droughty Too sandy Cobble content	 0.00 0.00 0.03 0.75	Fair Cobble content	 0.24
23: Bocker-----	85	Poor Droughty Depth to bedrock Cobble content	 0.00 0.00 0.02	Poor Depth to bedrock Cobble content	 0.00 0.88
24: Bocker-----	60	Poor Droughty Depth to bedrock Cobble content	 0.00 0.00 0.02	Poor Depth to bedrock Cobble content	 0.00 0.88
Anatone-----	15	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	 0.00 0.71 0.95
Rock outcrop-----	10	Not rated		Not rated	
25: Bocker-----	60	Poor Droughty Depth to bedrock Cobble content	 0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	 0.00 0.08 0.88

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
25: Anatone-----	15	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.08 0.71 0.95
Rock outcrop-----	10	Not rated		Not rated	
26: Bocker-----	50	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.88
Clearline-----	20	Fair Low organic matter content Stone content	0.88 0.92	Poor Slope Cobble content Depth to bedrock Stone content	0.00 0.83 0.92 0.98
Rock outcrop-----	20	Not rated		Not rated	
27: Bocker-----	40	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.88
Imnaha-----	30	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
28: Bridgewater-----	90	Poor Stone content Droughty Cobble content Low organic matter content	0.00 0.00 0.08 0.12	Poor Cobble content Stone content	0.00 0.00
29: Btree-----	45	Poor Wind erosion Too acid Water erosion	0.00 0.74 0.90	Fair Depth to bedrock Slope Shrink-swell	0.04 0.08 0.94
Flycreek-----	40	Poor Wind erosion Too clayey Too acid Water erosion Depth to bedrock	0.00 0.00 0.84 0.90 0.90	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.77
30: Btree-----	45	Poor Wind erosion Too acid Water erosion	0.00 0.74 0.90	Poor Slope Depth to bedrock Shrink-swell	0.00 0.04 0.94
Flycreek-----	40	Poor Wind erosion Too clayey Too acid Water erosion Depth to bedrock	0.00 0.00 0.84 0.90 0.90	Poor Depth to bedrock Slope Low strength Shrink-swell	0.00 0.00 0.00 0.77

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
31: Btree-----	30	Poor Wind erosion Too acid Water erosion	 0.00 0.74 0.90	Poor Slope Depth to bedrock Shrink-swell	 0.00 0.04 0.94
Flycreek-----	30	Poor Wind erosion Too clayey Too acid Water erosion Depth to bedrock	 0.00 0.00 0.84 0.90 0.90	Poor Depth to bedrock Slope Low strength Shrink-swell	 0.00 0.00 0.00 0.77
Anatone-----	30	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
32: Btree-----	30	Poor Wind erosion Too acid Water erosion	 0.00 0.74 0.90	Poor Slope Depth to bedrock Shrink-swell	 0.00 0.04 0.94
Flycreek-----	30	Poor Wind erosion Too clayey Too acid Water erosion Depth to bedrock	 0.00 0.00 0.84 0.90 0.90	Poor Depth to bedrock Slope Low strength Shrink-swell	 0.00 0.00 0.00 0.77
Anatone-----	30	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
33: Btree-----	40	Poor Wind erosion Too acid Water erosion	 0.00 0.74 0.90	Poor Slope Depth to bedrock Shrink-swell	 0.00 0.04 0.94
Klicker-----	30	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.29 0.87
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.00 0.71 0.95
34: Bucketlake-----	85	Poor Wind erosion Too acid Low organic matter content Water erosion	 0.00 0.61 0.88 0.99	Fair Slope Cobble content	 0.08 0.77



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
35: Bucketlake-----	85	Poor Wind erosion Too acid Low organic matter content Water erosion	0.00 0.61 0.88 0.99	Poor Slope Cobble content	0.00 0.77
36: Buford-----	45	Good		Fair Depth to bedrock	0.58
Anatone-----	40	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	0.00 0.71 0.95
37: Buford-----	45	Good		Fair Depth to bedrock	0.58
Bocker-----	40	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
38: Bunchpoint-----	85	Fair Depth to bedrock Too acid Water erosion	0.71 0.84 0.99	Poor Depth to bedrock	0.00
39: Bunchpoint-----	45	Fair Depth to bedrock Too acid Water erosion	0.71 0.84 0.99	Poor Depth to bedrock	0.00
Bocker-----	40	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
40: Chard-----	90	Fair Low organic matter content Water erosion	0.12 0.68	Fair Slope	0.08
41: Cherrycreek-----	50	Poor Stone content Cobble content Droughty	0.00 0.44 0.99	Poor Cobble content Stone content Depth to bedrock	0.00 0.00 0.82
Imnaha-----	35	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock	0.00
42: Cherrycreek-----	50	Poor Stone content Cobble content Droughty	0.00 0.44 0.99	Poor Cobble content Stone content Slope Depth to bedrock	0.00 0.00 0.08 0.82

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
42: Imnaha-----	20	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.08
Imnaha, moist-----	15	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.08
43: Cherrycreek-----	40	Poor Stone content Cobble content Droughty	0.00 0.44 0.99	Poor Slope Cobble content Stone content Depth to bedrock	0.00 0.00 0.00 0.82
Imnaha-----	35	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	10	Not rated		Not rated	
44: Cherrycreek-----	40	Poor Stone content Cobble content Droughty	0.00 0.44 0.99	Poor Slope Cobble content Stone content Depth to bedrock	0.00 0.00 0.00 0.82
Limberjim-----	35	Poor Wind erosion Low organic matter content Stone content	0.00 0.12 0.86	Poor Slope Depth to bedrock Cobble content Stone content Shrink-swell	0.00 0.01 0.79 0.89 0.98
Rock outcrop-----	10	Not rated		Not rated	
45: Chesnimnus-----	85	Fair Low organic matter content Carbonate content Too clayey Water erosion	0.12 0.46 0.98 0.99	Fair Shrink-swell	0.96
46: Chesnimnus-----	85	Fair Low organic matter content Carbonate content Too clayey Water erosion	0.12 0.46 0.98 0.99	Fair Shrink-swell	0.96
47: Cheval-----	85	Fair Low organic matter content	0.88	Fair Wetness depth	0.53
48: Cloverland-----	90	Fair Water erosion	0.99	Poor Low strength Wetness depth Shrink-swell	0.00 0.76 0.87
49: Cloverland-----	90	Fair Water erosion	0.99	Poor Low strength Wetness depth Shrink-swell	0.00 0.76 0.87

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
50: Conley-----	90	Poor Too clayey Low organic matter content Water erosion	0.00 0.12 0.90	Poor Low strength Wetness depth Shrink-swell	0.00 0.53 0.77
51: Conley-----	90	Poor Too clayey Low organic matter content Water erosion	0.00 0.12 0.90	Poor Low strength Wetness depth Shrink-swell	0.00 0.53 0.77
52: Copperfield-----	50	Fair Cobble content Droughty	0.52 0.96	Poor Slope Cobble content Shrink-swell	0.00 0.03 0.82
Thiessen-----	35	Poor Droughty Too clayey Cobble content Depth to bedrock	0.00 0.00 0.82 0.84	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.25 0.87
53: Copperfield-----	40	Fair Cobble content Droughty	0.52 0.96	Poor Slope Cobble content Shrink-swell	0.00 0.03 0.82
Thiessen-----	30	Poor Droughty Too clayey Cobble content Depth to bedrock	0.00 0.00 0.82 0.84	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.25 0.87
Rock outcrop-----	15	Not rated		Not rated	
54: Cowsly-----	90	Fair Low organic matter content Water erosion Too acid	0.12 0.99 0.99	Poor Low strength Wetness depth Depth to bedrock Shrink-swell	0.00 0.53 0.58 0.87
55: Cowsly-----	90	Fair Low organic matter content Water erosion Too acid	0.12 0.99 0.99	Poor Low strength Wetness depth Depth to bedrock Shrink-swell	0.00 0.53 0.58 0.87
56: Cowsly-----	85	Fair Low organic matter content Water erosion Too acid	0.12 0.99 0.99	Poor Low strength Wetness depth Depth to bedrock Shrink-swell	0.00 0.53 0.58 0.87
57: Cowsly, cobbly-----	60	Fair Low organic matter content Water erosion	0.12 0.99	Poor Low strength Slope Wetness depth Depth to bedrock Shrink-swell	0.00 0.08 0.53 0.58 0.87

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
57: Cowsly-----	25	Fair		Poor	
		Low organic matter content	0.12	Low strength	0.00
		Water erosion	0.99	Wetness depth	0.53
				Depth to bedrock	0.58
				Shrink-swell	0.87
58: Cowsly, cobbly-----	60	Fair		Poor	
		Low organic matter content	0.12	Low strength	0.00
		Water erosion	0.99	Slope	0.08
				Wetness depth	0.53
				Depth to bedrock	0.58
				Shrink-swell	0.87
Cowsly-----	25	Fair		Poor	
		Low organic matter content	0.12	Low strength	0.00
		Water erosion	0.99	Wetness depth	0.53
				Depth to bedrock	0.58
				Shrink-swell	0.87
59: Cowsly-----	60	Fair		Poor	
		Low organic matter content	0.12	Low strength	0.00
		Water erosion	0.99	Wetness depth	0.53
		Too acid	0.99	Depth to bedrock	0.58
				Shrink-swell	0.87
Howmeadows-----	15	Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00
		Droughty	0.13	Wetness depth	0.00
		Depth to bedrock	0.21	Low strength	0.00
		Low organic matter content	0.88	Shrink-swell	0.12
Sherod-----	15	Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00	Wetness depth	0.04
				Low strength	0.22
				Shrink-swell	0.74
				Cobble content	0.99
60: Demasters-----	50	Fair		Poor	
		Water erosion	0.99	Slope	0.00
				Depth to bedrock	0.12
				Shrink-swell	0.99
Snell-----	35	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Stone content	0.00	Slope	0.00
		Too clayey	0.08	Stone content	0.00
		Depth to bedrock	0.10	Low strength	0.00
				Shrink-swell	0.12
				Cobble content	0.97
61: Dixiejett-----	35	Fair		Poor	
		Droughty	0.05	Slope	0.00
		Low organic matter content	0.88	Depth to bedrock	0.07
		Stone content	0.99		
Lickskillet-----	30	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Stone content	0.00	Cobble content	0.13
		Cobble content	0.05	Stone content	0.55
		Low organic matter content	0.88		

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
61: Rockly-----	20	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.98
62: Doublecreek-----	40	Fair Low organic matter content Water erosion	0.12 0.99	Poor Slope	0.00
Flybow-----	30	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
63: Doublecreek-----	55	Fair Low organic matter content Water erosion	0.12 0.99	Good	
Langrell-----	30	Fair Low organic matter content Cobble content Stone content Droughty	0.12 0.74 0.80 0.85	Fair Cobble content Stone content	0.33 0.99
64: Doublecreek-----	45	Fair Low organic matter content Water erosion	0.12 0.99	Good	
Phys-----	40	Fair Low organic matter content Cobble content Too acid	0.12 0.84 0.99	Fair Cobble content	0.46
65: Downards-----	45	Fair Cobble content Low organic matter content	0.15 0.88	Poor Slope Cobble content	0.00 0.00
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
Rock outcrop-----	20	Not rated		Not rated	
66: Downards-----	50	Fair Cobble content Low organic matter content	0.15 0.88	Poor Slope Cobble content	0.00 0.00
Emily-----	20	Fair Low organic matter content Cobble content Droughty	0.12 0.82 0.99	Poor Slope Cobble content	0.00 0.21

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
66: Sopher-----	20	Poor Too clayey Low organic matter content	0.00 0.88	Poor Slope Depth to bedrock Shrink-swell Low strength	0.00 0.12 0.27 0.78
67: Downards-----	60	Fair Cobble content Low organic matter content Droughty	0.26 0.88 0.97	Poor Cobble content Slope Depth to bedrock	0.00 0.08 0.68
Klicker-----	25	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.08 0.29 0.87
68: Downards-----	60	Fair Cobble content Low organic matter content Droughty	0.26 0.88 0.97	Poor Slope Cobble content Depth to bedrock	0.00 0.00 0.68
Klicker-----	25	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.29 0.87
69: Downeygulch-----	50	Fair Depth to bedrock Too acid Droughty Water erosion	0.10 0.84 0.85 0.99	Poor Depth to bedrock	0.00
Lowerbluff-----	35	Poor Wind erosion Depth to bedrock Droughty Too acid	0.00 0.00 0.30 0.84	Poor Depth to bedrock	0.00
70: Downeygulch-----	55	Fair Depth to bedrock Too acid Droughty Water erosion	0.10 0.84 0.85 0.99	Poor Depth to bedrock Slope	0.00 0.08
Thirstygulch-----	30	Poor Stone content Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.88	Poor Depth to bedrock Stone content Slope Cobble content	0.00 0.00 0.08 0.86
71: Eggleson-----	85	Poor Too sandy Droughty Low organic matter content Cobble content	0.00 0.00 0.88 0.99	Fair Cobble content Wetness depth	0.50 0.89

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
72: Emily-----	55	Fair Low organic matter content Cobble content Droughty	0.12 0.82 0.99	Fair Slope Cobble content	0.08 0.21
Wolot-----	30	Poor Wind erosion Low organic matter content Water erosion	0.00 0.60 0.90	Poor Low strength Slope Shrink-swell	0.00 0.08 0.96
73: Endoaquolls, mesic--	85	Fair Low organic matter content Stone content Cobble content Droughty	0.12 0.61 0.75 0.95	Poor Wetness depth Stone content Cobble content	0.00 0.01 0.69
74: Ferguson-----	85	Poor Wind erosion Stone content Low organic matter content Water erosion	0.00 0.14 0.88 0.90	Poor Stone content	0.00
75: Ferguson-----	85	Poor Wind erosion Stone content Low organic matter content Water erosion	0.00 0.14 0.88 0.90	Poor Stone content Slope	0.00 0.08
76: Ferguson-----	85	Poor Wind erosion Stone content Low organic matter content Water erosion	0.00 0.14 0.88 0.90	Poor Slope Stone content	0.00 0.00
77: Ferguson-----	85	Poor Wind erosion Stone content Low organic matter content Water erosion	0.00 0.14 0.88 0.90	Poor Stone content Slope	0.00 0.08
78: Ferguson-----	85	Poor Wind erosion Stone content Low organic matter content Water erosion	0.00 0.14 0.88 0.90	Poor Slope Stone content	0.00 0.00
79: Flybow-----	40	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
80: Flybow-----	40	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.00
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
81: Flycreek-----	65	Poor Wind erosion Too clayey Too acid Water erosion Depth to bedrock	0.00 0.00 0.84 0.90 0.90	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.77
Flyvalley-----	20	Poor Wind erosion Depth to bedrock Too acid Water erosion	0.00 0.00 0.74 0.90	Poor Depth to bedrock	0.00
82: Freels-----	85	Good		Good	
83: Geisercreek-----	85	Poor Wind erosion Low organic matter content Water erosion	0.00 0.50 0.90	Poor Low strength Slope	0.00 0.08
84: Gelsinger-----	85	Fair Too clayey Water erosion	0.08 0.99	Poor Low strength Shrink-swell	0.00 0.95
85: Gelsinger-----	85	Fair Too clayey Water erosion	0.08 0.99	Poor Low strength Shrink-swell	0.00 0.95
86: Getaway-----	85	Fair Cobble content	0.70	Fair Cobble content Slope Depth to bedrock Shrink-swell	0.03 0.08 0.39 0.91
87: Getaway-----	85	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
88: Getaway-----	45	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
Anatone-----	30	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
88: Rock outcrop-----	10	Not rated		Not rated	
89: Getaway-----	50	Fair Cobble content	0.70	Fair Cobble content Slope Depth to bedrock Shrink-swell	0.03 0.08 0.39 0.91
Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86
90: Getaway-----	50	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
91: Getaway-----	40	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
Harlow-----	30	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Rock outcrop-----	15	Not rated		Not rated	
92: Getaway-----	35	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
Linecreek-----	30	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
93: Getaway-----	50	Fair Cobble content	0.74	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.05 0.39 0.91
Snell-----	35	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Slope Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.00 0.12 0.97
94: Gwin-----	55	Poor Droughty Depth to bedrock Cobble content Stone content Water erosion	0.00 0.00 0.92 0.92 0.99	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.87 0.98
Kettenbach-----	20	Poor Droughty Depth to bedrock Cobble content	0.00 0.10 0.32	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
95: Gwin-----	55	Poor Droughty Depth to bedrock Cobble content Stone content Water erosion	0.00 0.00 0.92 0.92 0.99	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.87 0.98
Kettenbach-----	20	Poor Droughty Depth to bedrock Cobble content	0.00 0.10 0.32	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
96: Gwin-----	35	Poor Droughty Depth to bedrock Cobble content Stone content Water erosion	0.00 0.00 0.92 0.92 0.99	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.87 0.98
Klickson-----	30	Fair Cobble content Low organic matter content Stone content	0.70 0.88 0.90	Poor Slope Cobble content Shrink-swell Stone content	0.00 0.00 0.94 0.99
Kettenbach-----	20	Poor Droughty Depth to bedrock Cobble content	0.00 0.10 0.32	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.00 0.99

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
97: Gwinly-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Kettenbach-----	35	Poor Droughty Depth to bedrock Cobble content	0.00 0.10 0.32	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.00 0.99
Rock outcrop-----	10	Not rated		Not rated	
98: Gwinly-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Low strength Shrink-swell Cobble content Slope	0.00 0.00 0.12 0.13 0.92
Mallory-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Shrink-swell Cobble content Slope Stone content	0.00 0.16 0.29 0.92 0.99
99: Gwinly-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Mallory-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.00 0.16 0.29 0.99
100: Gwinly-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Low strength Slope Shrink-swell Cobble content	0.00 0.00 0.08 0.12 0.13
Mallory-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.08 0.16 0.29 0.99
Kettenbach-----	25	Poor Droughty Depth to bedrock Cobble content	0.00 0.10 0.32	Poor Depth to bedrock Cobble content Slope Shrink-swell	0.00 0.00 0.08 0.99

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
101: Gwinly-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Mallory-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.00 0.16 0.29 0.99
Kettenbach-----	25	Poor Droughty Depth to bedrock Cobble content	0.00 0.10 0.32	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.00 0.99
102: Gwinly-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Mallory-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.00 0.16 0.29 0.99
Kettenbach-----	25	Poor Droughty Depth to bedrock Cobble content	0.00 0.10 0.32	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.00 0.99
103: Gwinly-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Mallory-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.00 0.16 0.29 0.99
Rock outcrop-----	25	Not rated		Not rated	
104: Gwinly-----	50	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Low strength Shrink-swell Cobble content	0.00 0.00 0.12 0.13

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
104: Rockly-----	35	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Cobble content	0.00 0.98
105: Gwinly-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Rockly-----	25	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.98
Rock outcrop-----	20	Not rated		Not rated	
106: Gwinly-----	60	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Sopher-----	25	Poor Too clayey Low organic matter content	0.00 0.88	Poor Slope Depth to bedrock Shrink-swell Low strength	0.00 0.12 0.27 0.78
107: Gwinly-----	55	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Sopher-----	25	Poor Too clayey Low organic matter content	0.00 0.88	Poor Slope Depth to bedrock Shrink-swell Low strength	0.00 0.12 0.27 0.78
Rock outcrop-----	10	Not rated		Not rated	
108: Hapludolls, frigid--	35	Fair Low organic matter content Stone content	0.12 0.37	Fair Stone content Wetness depth	0.78 0.89
Endoaquolls, frigid	30	Poor Stone content Low organic matter content Cobble content	0.00 0.12 0.92	Poor Wetness depth Stone content Cobble content	0.00 0.00 0.53

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
108: Endoaquents, frigid	20	Fair		Poor	
		Low organic matter content	0.12	Wetness depth	0.00
		Too sandy	0.14	Cobble content	0.21
		Stone content	0.27	Stone content	0.63
		Cobble content	0.81		
109: Harl-----	40	Fair		Poor	
		Stone content	0.02	Slope	0.00
		Too acid	0.92	Stone content	0.21
		Cobble content	0.96	Cobble content	0.37
Anatone-----	30	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Stone content	0.00	Stone content	0.71
		Cobble content	0.76	Cobble content	0.95
Rock outcrop-----	15	Not rated		Not rated	
110: Harl-----	45	Fair		Poor	
		Stone content	0.02	Slope	0.00
		Too acid	0.92	Stone content	0.21
		Cobble content	0.96	Cobble content	0.37
Anatone-----	30	Poor		Poor	
		Droughty	0.00	Slope	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.00
		Stone content	0.00	Stone content	0.71
		Cobble content	0.76	Cobble content	0.95
Rock outcrop-----	10	Not rated		Not rated	
111: Harl-----	45	Fair		Poor	
		Stone content	0.02	Slope	0.00
		Too acid	0.92	Stone content	0.21
		Cobble content	0.96	Cobble content	0.37
Getaway-----	40	Fair		Poor	
		Cobble content	0.70	Slope	0.00
				Cobble content	0.03
				Depth to bedrock	0.39
				Shrink-swell	0.91
112: Harl-----	50	Fair		Poor	
		Stone content	0.02	Slope	0.00
		Too acid	0.92	Stone content	0.21
		Cobble content	0.96	Cobble content	0.37
Limberjim-----	25	Poor		Poor	
		Wind erosion	0.00	Slope	0.00
		Low organic matter content	0.12	Depth to bedrock	0.01
		Stone content	0.86	Cobble content	0.79
				Stone content	0.89
				Shrink-swell	0.98
Rock outcrop-----	10	Not rated		Not rated	
113: Harlow-----	60	Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00
		Droughty	0.00	Shrink-swell	0.12
		Depth to bedrock	0.00	Cobble content	0.86
		Cobble content	0.81		
		Stone content	0.98		

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
113: Bocker-----	25	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
114: Harlow-----	60	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86
Bocker-----	25	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.88
115: Harlow-----	45	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Bocker-----	40	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.88
116: Harlow-----	50	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.86
Bocker-----	35	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
117: Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Bocker-----	30	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.88
Rock outcrop-----	20	Not rated		Not rated	
118: Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.86

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
118: Imnaha-----	35	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock	0.00
Rock outcrop-----	10	Not rated		Not rated	
119: Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Imnaha-----	35	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	10	Not rated		Not rated	
120: Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Imnaha-----	35	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	10	Not rated		Not rated	
121: Harlow-----	50	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Klicker-----	35	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Slope Depth to bedrock Cobble content Shrink-swell	0.00 0.00 0.29 0.87
122: Harlow-----	50	Poor Depth to bedrock Too clayey Droughty Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Klicker-----	35	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Slope Depth to bedrock Cobble content Shrink-swell	0.00 0.00 0.29 0.87



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
123: Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.86
Snell-----	25	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.96
Imnaha-----	25	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock	0.00
124: Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86
Snell-----	25	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Slope Shrink-swell Cobble content	0.00 0.00 0.00 0.08 0.12 0.96
Imnaha-----	25	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.08
125: Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Snell-----	25	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Slope Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.00 0.12 0.96
Imnaha-----	25	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
126: Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
126: Snell-----	25	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Slope Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.00 0.12 0.96
Rock outcrop-----	25	Not rated		Not rated	
127: Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Tamarackcanyon-----	25	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	0.00 0.10 0.88 0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	0.00 0.00 0.14 0.19 0.73 0.78
Linecreek-----	20	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
128: Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Tamarackcanyon-----	25	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	0.00 0.10 0.88 0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	0.00 0.00 0.14 0.19 0.73 0.78
Olot-----	20	Poor Wind erosion Depth to bedrock Water erosion Too acid	0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.94
129: Harlow-----	50	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
129: Threebuck-----	35	Poor Wind erosion Too clayey Stone content Too acid	 0.00 0.00 0.73 0.95	Poor Slope Stone content Depth to bedrock Cobble content Shrink-swell	 0.00 0.12 0.29 0.69 0.95
130: Hershal-----	85	Fair Low organic matter content Water erosion Droughty	 0.12 0.90 0.99	Poor Wetness depth	 0.00
131: Hershal-----	50	Fair Low organic matter content Water erosion Droughty	 0.12 0.90 0.99	Poor Wetness depth	 0.00
Voats-----	35	Fair Low organic matter content Droughty Stone content Cobble content	 0.12 0.44 0.88 0.92	Fair Cobble content Stone content	 0.52 0.97
132: Hershal-----	35	Fair Low organic matter content Water erosion Droughty	 0.12 0.90 0.99	Poor Wetness depth	 0.00
Voats-----	30	Fair Low organic matter content Droughty Stone content Cobble content	 0.12 0.44 0.88 0.92	Fair Cobble content Stone content	 0.52 0.97
Veazie-----	20	Fair Low organic matter content	 0.88	Good	
133: Howmeadows-----	50	Poor Too clayey Droughty Depth to bedrock Low organic matter content	 0.00 0.13 0.21 0.88	Poor Depth to bedrock Wetness depth Low strength Shrink-swell	 0.00 0.00 0.00 0.12
Wilkins-----	35	Fair Low organic matter content Water erosion	 0.12 0.99	Poor Low strength Wetness depth Shrink-swell	 0.00 0.04 0.73
134: Hurwal-----	90	Fair Water erosion Too acid	 0.90 0.99	Fair Low strength Shrink-swell	 0.78 0.96
135: Hurwal-----	90	Fair Water erosion Too acid	 0.90 0.99	Fair Low strength Shrink-swell	 0.78 0.96

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
136: Hurwal, deep-----	85	Fair Water erosion	0.90	Fair Slope Low strength Shrink-swell Depth to bedrock	0.08 0.78 0.96 0.99
137: Hurwal, deep-----	85	Fair Water erosion	0.90	Poor Slope Low strength Shrink-swell Depth to bedrock	0.00 0.78 0.96 0.99
138: Hurwal-----	90	Fair Water erosion Too acid	0.90 0.99	Fair Low strength Shrink-swell	0.78 0.96
139: Hurwal-----	90	Fair Water erosion Too acid	0.90 0.99	Fair Low strength Shrink-swell	0.78 0.96
140: Hurwal-----	90	Fair Water erosion Too acid	0.90 0.99	Fair Slope Low strength Shrink-swell	0.08 0.78 0.96
141: Imnaha-----	55	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.08
Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.08 0.71 0.95
142: Imnaha-----	35	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
Imhaha, moist-----	30	Fair Depth to bedrock Droughty Stone content	0.10 0.61 0.94	Poor Depth to bedrock Slope	0.00 0.00
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
143: Imnaha-----	40	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
Bocker-----	25	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.88

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
143: Clearline-----	20	Fair		Poor	
		Low organic matter content	0.88	Slope	0.00
		Stone content	0.92	Cobble content	0.83
				Depth to bedrock	0.92
				Stone content	0.98
144: Imnaha-----	45	Fair		Poor	
		Depth to bedrock	0.10	Depth to bedrock	0.00
		Droughty	0.61	Slope	0.00
Cherrycreek-----	30	Poor		Poor	
		Stone content	0.00	Slope	0.00
		Cobble content	0.44	Cobble content	0.00
		Droughty	0.99	Stone content	0.00
				Depth to bedrock	0.82
Anatone-----	15	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Stone content	0.00	Stone content	0.71
		Cobble content	0.76	Cobble content	0.95
145: Imnaha-----	40	Fair		Poor	
		Depth to bedrock	0.10	Depth to bedrock	0.00
		Droughty	0.61	Slope	0.00
Clearline-----	30	Fair		Poor	
		Low organic matter content	0.88	Slope	0.00
		Stone content	0.92	Cobble content	0.83
				Depth to bedrock	0.92
				Stone content	0.98
Rock outcrop-----	15	Not rated		Not rated	
146: Imnaha-----	45	Fair		Poor	
		Depth to bedrock	0.10	Depth to bedrock	0.00
		Droughty	0.61	Slope	0.00
Rock outcrop-----	25	Not rated		Not rated	
Cherrycreek-----	20	Poor		Poor	
		Stone content	0.00	Slope	0.00
		Cobble content	0.44	Cobble content	0.00
		Droughty	0.99	Stone content	0.00
				Depth to bedrock	0.82
147: Josset-----	85	Poor		Good	
		Too sandy	0.00		
		Low organic matter content	0.12		
		Droughty	0.87		
148: Kahler-----	50	Fair		Poor	
		Water erosion	0.90	Slope	0.00
				Low strength	0.22
				Shrink-swell	0.87
Anatone-----	35	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Stone content	0.00	Stone content	0.71
		Cobble content	0.76	Cobble content	0.95

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
149: Kahler-----	40	Fair Water erosion	0.90	Poor Slope Low strength Shrink-swell	0.00 0.22 0.87
Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
Rock outcrop-----	10	Not rated		Not rated	
150: Kahler-----	35	Fair Water erosion	0.90	Poor Slope Low strength Shrink-swell	0.00 0.22 0.87
Linecreek-----	30	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
Getaway-----	20	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
151: Kahler-----	35	Fair Water erosion	0.90	Poor Slope Low strength Shrink-swell	0.00 0.22 0.87
Linecreek-----	35	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
Getaway-----	15	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
152: Klicker-----	85	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Cobble content Shrink-swell	0.00 0.29 0.87
153: Klicker-----	85	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.08 0.29 0.87

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
154: Klicker-----	85	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.29 0.87
155: Klicker-----	85	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.08 0.29 0.87
156: Klicker-----	85	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.29 0.87
157: Klicker-----	50	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Cobble content Shrink-swell	 0.00 0.29 0.87
Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	 0.00 0.71 0.95
158: Klicker-----	50	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.08 0.29 0.87
Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.08 0.71 0.95
159: Klicker-----	50	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.29 0.87

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
159: Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
160: Klicker-----	35	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Cobble content Shrink-swell	0.00 0.29 0.87
Fivebit-----	30	Poor Droughty Depth to bedrock Low organic matter content	0.00 0.00 0.50	Poor Depth to bedrock	0.00
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	0.00 0.71 0.95
161: Klicker-----	35	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.29 0.87
Fivebit-----	30	Poor Droughty Depth to bedrock Low organic matter content	0.00 0.00 0.50	Poor Depth to bedrock Slope	0.00 0.00
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
162: Klicker-----	50	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.08 0.29 0.87
Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
163: Klicker-----	40	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.29 0.87
Kamela-----	30	Poor Droughty Depth to bedrock Cobble content Low organic matter content Too acid	 0.00 0.03 0.82 0.88  0.95	Poor Depth to bedrock Slope Cobble content	 0.00 0.00 0.72
Fivebit-----	15	Poor Droughty Depth to bedrock Low organic matter content	 0.00 0.00 0.50	Poor Depth to bedrock Slope	 0.00 0.00
164: Klicker-----	55	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.56 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.40 0.87
Olot-----	30	Poor Wind erosion Depth to bedrock Water erosion Too acid	 0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	 0.00 0.00 0.94
165: Klicker-----	35	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.56 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.08 0.40 0.87
Thirstygulch-----	30	Poor Stone content Droughty Depth to bedrock Cobble content	 0.00 0.00 0.00 0.88	Poor Depth to bedrock Stone content Slope Cobble content	 0.00 0.00 0.08 0.86
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	 0.00 0.08 0.71 0.95
166: Klicker-----	35	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.56 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.40 0.87

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
166: Thirstygulch-----	30	Poor Stone content Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.88	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.00 0.86
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
167: Klicker-----	40	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	0.00 0.10 0.12 0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.29 0.87
Rock outcrop-----	25	Not rated		Not rated	
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
168: Klickson-----	35	Fair Cobble content Low organic matter content Stone content	0.70 0.88 0.90	Poor Slope Cobble content Shrink-swell Stone content	0.00 0.00 0.94 0.99
Anatone-----	25	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
Larabee-----	25	Fair Droughty Low organic matter content Water erosion Depth to bedrock	0.85 0.88 0.90 0.93	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.95 0.99
169: Klickson-----	35	Fair Cobble content Low organic matter content Stone content	0.70 0.88 0.90	Poor Slope Cobble content Shrink-swell Stone content	0.00 0.00 0.94 0.99
Anatone-----	25	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
Larabee-----	25	Fair Droughty Low organic matter content Water erosion Depth to bedrock	0.85 0.88 0.90 0.93	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.95 0.99

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
170: Klickson-----	60	Fair Cobble content Low organic matter content Stone content	 0.70 0.88  0.90	Poor Cobble content Slope Shrink-swell Stone content	 0.00 0.08 0.94 0.99
Larabee-----	25	Fair Droughty Low organic matter content Water erosion Depth to bedrock	 0.85 0.88  0.90 0.93	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.08 0.95 0.99
171: Klickson-----	35	Fair Cobble content Low organic matter content Stone content	 0.70 0.88  0.90	Poor Slope Cobble content Shrink-swell Stone content	 0.00 0.00 0.94 0.99
Larabee-----	30	Fair Droughty Low organic matter content Water erosion Depth to bedrock	 0.85 0.88  0.90 0.93	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.95 0.99
Volstead-----	20	Fair Too clayey Low organic matter content Water erosion	 0.08 0.88  0.99	Poor Slope Low strength Depth to bedrock Shrink-swell	 0.00 0.00 0.39 0.91
172: Langrell-----	85	Fair Low organic matter content Cobble content Stone content Droughty	 0.12  0.74 0.80 0.85	Fair Cobble content Stone content	 0.33 0.99
173: Langrell-----	50	Fair Low organic matter content Cobble content Stone content Droughty	 0.12  0.74 0.80 0.85	Fair Cobble content Stone content	 0.33 0.99
Snow-----	35	Fair Low organic matter content Water erosion	 0.88  0.90	Good	
174: Larabee-----	35	Fair Droughty Low organic matter content Water erosion Depth to bedrock	 0.85 0.88  0.90 0.93	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.00 0.95 0.99
Getaway-----	30	Fair Cobble content	 0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	 0.00 0.03 0.39 0.91

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
174: Klickson-----	20	Fair		Poor	
		Cobble content	0.70	Slope	0.00
		Low organic matter content	0.88	Cobble content	0.00
		Stone content	0.90	Shrink-swell	0.94
				Stone content	0.99
175: Larabee-----	35	Fair		Poor	
		Droughty	0.85	Depth to bedrock	0.00
		Low organic matter content	0.88	Slope	0.08
		Water erosion	0.90	Cobble content	0.95
		Depth to bedrock	0.93	Shrink-swell	0.99
Klickson-----	30	Fair		Poor	
		Cobble content	0.70	Cobble content	0.00
		Low organic matter content	0.88	Slope	0.08
		Stone content	0.90	Shrink-swell	0.94
				Stone content	0.99
Volstead-----	20	Fair		Poor	
		Too clayey	0.08	Low strength	0.00
		Low organic matter content	0.88	Slope	0.08
		Water erosion	0.99	Depth to bedrock	0.39
				Shrink-swell	0.91
176: Larabee-----	35	Fair		Poor	
		Droughty	0.85	Depth to bedrock	0.00
		Low organic matter content	0.88	Slope	0.00
		Water erosion	0.90	Cobble content	0.95
		Depth to bedrock	0.93	Shrink-swell	0.99
Klickson-----	30	Fair		Poor	
		Cobble content	0.70	Slope	0.00
		Low organic matter content	0.88	Cobble content	0.00
		Stone content	0.90	Shrink-swell	0.94
				Stone content	0.99
Volstead-----	20	Fair		Poor	
		Too clayey	0.08	Slope	0.00
		Low organic matter content	0.88	Low strength	0.00
		Water erosion	0.99	Depth to bedrock	0.39
				Shrink-swell	0.91
177: Larabee-----	45	Fair		Poor	
		Droughty	0.85	Depth to bedrock	0.00
		Low organic matter content	0.88	Cobble content	0.95
		Water erosion	0.90	Shrink-swell	0.99
		Depth to bedrock	0.93		
Melhorn-----	40	Fair		Good	
		Water erosion	0.99		
178: Larabee-----	45	Fair		Poor	
		Droughty	0.85	Depth to bedrock	0.00
		Low organic matter content	0.88	Slope	0.08
		Water erosion	0.90	Cobble content	0.95
		Depth to bedrock	0.93	Shrink-swell	0.99

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
178: Volstead-----	40	Fair		Poor	
		Too clayey	0.08	Low strength	0.00
		Low organic matter content	0.88	Slope	0.08
		Water erosion	0.99	Depth to bedrock	0.39
				Shrink-swell	0.91
179: Laufer-----	50	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Too clayey	0.00	Shrink-swell	0.12
		Depth to bedrock	0.00	Cobble content	0.76
		Stone content	0.31	Stone content	0.93
		Cobble content	0.66		
Thiessen-----	35	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Too clayey	0.00	Cobble content	0.25
		Cobble content	0.82	Shrink-swell	0.87
		Depth to bedrock	0.84		
180: Laufer-----	50	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.08
		Too clayey	0.00	Shrink-swell	0.12
		Stone content	0.31	Cobble content	0.76
		Cobble content	0.66	Stone content	0.93
Thiessen-----	35	Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00
		Droughty	0.00	Slope	0.08
		Cobble content	0.82	Cobble content	0.25
		Depth to bedrock	0.84	Shrink-swell	0.87
181: Laufer-----	45	Poor		Poor	
		Too clayey	0.00	Slope	0.00
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Shrink-swell	0.12
		Stone content	0.31	Cobble content	0.76
		Cobble content	0.66	Stone content	0.93
Thiessen-----	40	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Too clayey	0.00	Slope	0.00
		Cobble content	0.82	Cobble content	0.25
		Depth to bedrock	0.84	Shrink-swell	0.87
182: Laufer-----	40	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Too clayey	0.00	Shrink-swell	0.12
		Stone content	0.31	Cobble content	0.76
		Cobble content	0.66	Stone content	0.93
Thiessen-----	30	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Too clayey	0.00	Slope	0.00
		Cobble content	0.82	Cobble content	0.25
		Depth to bedrock	0.84	Shrink-swell	0.87
Rock outcrop-----	15	Not rated		Not rated	

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
183: Lawyer, stony-----	30	Fair Too clayey Droughty	0.88 0.99	Poor Slope Depth to bedrock Cobble content Shrink-swell	0.00 0.12 0.67 0.89
Lawyer-----	25	Fair Too clayey Water erosion	0.88 0.99	Poor Slope Depth to bedrock Cobble content Shrink-swell	0.00 0.12 0.67 0.89
Gwinly-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.06 0.99	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.21
184: Lickskillet-----	40	Poor Droughty Depth to bedrock Stone content Cobble content Low organic matter content	0.00 0.00 0.00 0.05 0.88	Poor Depth to bedrock Slope Cobble content Stone content	0.00 0.00 0.13 0.55
Dixiejett-----	25	Fair Droughty Low organic matter content Stone content	0.05 0.88 0.99	Poor Slope Depth to bedrock	0.00 0.07
Rock outcrop-----	20	Not rated		Not rated	
185: Lickskillet-----	40	Poor Droughty Depth to bedrock Stone content Cobble content Low organic matter content	0.00 0.00 0.00 0.05 0.88	Poor Depth to bedrock Cobble content Stone content	0.00 0.13 0.55
Doublecreek-----	25	Fair Low organic matter content Water erosion	0.12 0.99	Good	
Rockly-----	20	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Cobble content	0.00 0.98
186: Lickskillet-----	30	Poor Droughty Depth to bedrock Stone content Cobble content Low organic matter content	0.00 0.00 0.00 0.05 0.88	Poor Depth to bedrock Slope Cobble content Stone content	0.00 0.08 0.13 0.55

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
186: Doublecreek-----	30	Fair Low organic matter content Water erosion	0.12 0.99	Fair Slope	0.08
Rockly-----	25	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.98
187: Limberjim-----	85	Poor Wind erosion Low organic matter content Stone content	0.00 0.12 0.86	Fair Depth to bedrock Cobble content Stone content Shrink-swell	0.01 0.79 0.89 0.98
188: Limberjim-----	50	Poor Wind erosion Low organic matter content Stone content	0.00 0.12 0.86	Poor Slope Depth to bedrock Cobble content Stone content Shrink-swell	0.00 0.01 0.79 0.89 0.98
Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
189: Limberjim-----	60	Poor Wind erosion Low organic matter content Stone content	0.00 0.12 0.86	Fair Depth to bedrock Slope Cobble content Stone content Shrink-swell	0.01 0.08 0.79 0.89 0.98
Syrupcreek-----	25	Poor Wind erosion Depth to bedrock Droughty Stone content	0.00 0.35 0.96 0.98	Poor Depth to bedrock Slope	0.00 0.08
190: Limberjim-----	70	Poor Wind erosion Low organic matter content Stone content	0.00 0.12 0.86	Poor Slope Depth to bedrock Cobble content Stone content Shrink-swell	0.00 0.01 0.79 0.89 0.98
Syrupcreek-----	15	Poor Wind erosion Depth to bedrock Droughty Stone content	0.00 0.35 0.96 0.98	Poor Depth to bedrock Slope	0.00 0.00
191: Limberjim-----	45	Poor Wind erosion Low organic matter content Stone content	0.00 0.12 0.86	Fair Depth to bedrock Cobble content Stone content Shrink-swell	0.01 0.79 0.89 0.98

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
191: Tamara-----	40	Poor Wind erosion Water erosion Too acid	0.00 0.90 0.95	Fair Low strength	0.22
192: Linecreek-----	55	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
Getaway-----	35	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
193: Lookingglass-----	85	Good		Poor Low strength Wetness depth Shrink-swell	0.00 0.76 0.80
194: Lookingglass-----	85	Good		Poor Low strength Wetness depth Shrink-swell	0.00 0.76 0.80
195: Lookingglass, stony	85	Fair Stone content	0.65	Poor Low strength Stone content Wetness depth Shrink-swell	0.00 0.02 0.76 0.80
196: Lookingglass, cobbly	60	Good		Poor Low strength Slope Wetness depth Shrink-swell	0.00 0.08 0.76 0.80
Lookingglass-----	25	Good		Poor Low strength Wetness depth Shrink-swell	0.00 0.76 0.80
197: Lookingglass-----	65	Good		Poor Low strength Wetness depth Shrink-swell	0.00 0.76 0.80
Sopher-----	20	Poor Too clayey Low organic matter content	0.00 0.88	Fair Slope Depth to bedrock Shrink-swell Low strength	0.08 0.12 0.27 0.78
198: Lookingglass-----	65	Good		Poor Low strength Wetness depth Shrink-swell	0.00 0.76 0.80



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
198: Sopher-----	20	Poor Too clayey Low organic matter content	0.00 0.88	Fair Slope Depth to bedrock Shrink-swell Low strength	0.08 0.12 0.27 0.78
199: Lostine-----	85	Fair Water erosion	0.99	Good	
200: Mallory-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.08 0.16 0.29 0.99
Gwinly-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Low strength Slope Shrink-swell Cobble content	0.00 0.00 0.08 0.12 0.13
Lawyer-----	25	Fair Too clayey Droughty	0.88 0.99	Fair Slope Depth to bedrock Cobble content Shrink-swell	0.08 0.12 0.67 0.89
201: Mallory-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.00 0.16 0.29 0.99
Gwinly-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
Lawyer-----	25	Fair Too clayey Droughty	0.88 0.99	Poor Slope Depth to bedrock Cobble content Shrink-swell	0.00 0.12 0.67 0.89
202: Mallory-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.21 0.48 0.87	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	0.00 0.00 0.16 0.29 0.99
Lawyer-----	35	Fair Too clayey Droughty	0.88 0.99	Poor Slope Depth to bedrock Cobble content Shrink-swell	0.00 0.12 0.67 0.89
Rock outcrop-----	10	Not rated		Not rated	

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
203: Matheny-----	35	Fair Cobble content Low organic matter content Water erosion	 0.70 0.82 0.99	Poor Slope Cobble content Depth to bedrock Shrink-swell	 0.00 0.04 0.12 0.87
Linville-----	25	Fair Water erosion	 0.99	Poor Slope	 0.00
Laufer-----	25	Poor Droughty Depth to bedrock Too clayey Stone content Cobble content	 0.00 0.00 0.00 0.31 0.66	Poor Depth to bedrock Slope Shrink-swell Cobble content Stone content	 0.00 0.00 0.12 0.76 0.93
204: Matterhorn-----	85	Poor Droughty Cobble content Low organic matter content Stone content Carbonate content	 0.00 0.17 0.68 0.94 0.97	Poor Cobble content Stone content	 0.00 0.98
205: Minam-----	85	Fair Low organic matter content Stone content	 0.12 0.97	Good	
206: Minam-----	85	Fair Low organic matter content Stone content	 0.12 0.97	Good	
207: Minam-----	85	Fair Low organic matter content Stone content	 0.12 0.97	Good	
208: Minam-----	85	Fair Low organic matter content Stone content	 0.12 0.97	Good	
209: Minam-----	90	Fair Low organic matter content Stone content	 0.12 0.97	Fair	
210: Minam-----	90	Fair Low organic matter content Stone content	 0.12 0.33	Fair Stone content	 0.71
211: Minam-----	90	Fair Low organic matter content Stone content	 0.12 0.33	Fair Stone content	 0.71

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
212: Minam-----	30	Fair Low organic matter content Stone content	0.12 0.97	Good	
Minam, gravelly----	20	Fair Low organic matter content Stone content	0.12 0.97	Good	
Endoquepts-----	40	Fair Water erosion	0.99	Poor Wetness depth Low strength	0.00 0.22
213: Minam, gravelly----	30	Fair Low organic matter content Stone content	0.12 0.97	Good	
Minam, stony-----	25	Fair Low organic matter content Stone content	0.12 0.33	Fair Stone content	0.71
Endoquepts-----	35	Fair Water erosion	0.99	Poor Wetness depth Low strength	0.00 0.22
214: Mippon-----	90	Poor Low organic matter content Droughty Too sandy Cobble content	0.00 0.00 0.03 0.75	Fair Cobble content	0.24
215: Mountemily-----	45	Poor Wind erosion Too acid	0.00 0.84	Fair Slope Cobble content	0.08 0.72
Troutmeadows-----	40	Poor Wind erosion Depth to bedrock Too acid	0.00 0.58 0.95	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.99
216: Mountemily-----	45	Poor Wind erosion Too acid	0.00 0.84	Poor Slope Cobble content	0.00 0.72
Troutmeadows-----	40	Poor Wind erosion Depth to bedrock Too acid	0.00 0.58 0.95	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.99
217: Mountemily-----	45	Poor Wind erosion Too acid	0.00 0.84	Poor Slope Cobble content	0.00 0.72
Troutmeadows-----	40	Poor Wind erosion Depth to bedrock Too acid	0.00 0.58 0.95	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.99

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
218: Mountemily-----	35	Poor Wind erosion Too acid	0.00 0.84	Poor Slope Cobble content	0.00 0.72
Troutmeadows-----	25	Poor Wind erosion Depth to bedrock Too acid	0.00 0.58 0.95	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.99
Anatone, cold-----	25	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
219: Needhill-----	35	Fair Low organic matter content Too acid	0.88 0.95	Fair Slope Depth to bedrock	0.08 0.82
Parsnip-----	25	Poor Depth to bedrock Droughty Water erosion	0.00 0.09 0.90	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.87
Bocker-----	25	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.88
220: Needhill-----	45	Fair Low organic matter content Too acid	0.88 0.95	Fair Depth to bedrock	0.82
Zumwalt-----	40	Poor Too clayey Low organic matter content Depth to bedrock	0.00 0.32 0.97	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.15
221: Olot-----	85	Poor Wind erosion Depth to bedrock Water erosion Too acid	0.00 0.93 0.99 0.99	Poor Depth to bedrock Cobble content	0.00 0.94
222: Olot-----	85	Poor Wind erosion Depth to bedrock Water erosion Too acid	0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.94
223: Olot-----	50	Poor Wind erosion Depth to bedrock Water erosion Too acid	0.00 0.93 0.99 0.99	Poor Depth to bedrock Cobble content	0.00 0.94

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
223: Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	0.00 0.71 0.95
224: Olot-----	50	Poor Wind erosion Depth to bedrock Water erosion Too acid	0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.94
Anatone-----	35	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.08 0.71 0.95
225: Parsnip-----	85	Poor Depth to bedrock Droughty Water erosion	0.00 0.09 0.90	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.87
226: Parsnip-----	55	Poor Depth to bedrock Droughty Water erosion	0.00 0.09 0.90	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.87
Bocker-----	30	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
227: Phys-----	85	Fair Low organic matter content Stone content Cobble content Droughty	0.12 0.32 0.37 0.99	Poor Cobble content Stone content	0.00 0.70
228: Phys-----	40	Fair Low organic matter content Cobble content Too acid Droughty	0.12 0.84 0.99 0.99	Fair Cobble content	0.46
Doublecreek-----	30	Fair Low organic matter content Water erosion	0.12 0.99	Good	
Collegecreek-----	20	Poor Wind erosion	0.00	Good	
229: Phys-----	35	Fair Low organic matter content Cobble content Too acid Droughty	0.12 0.84 0.99 0.99	Fair Slope Cobble content	0.08 0.46

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
229: Doublecreek-----	30	Fair Low organic matter content Water erosion	0.12 0.99	Fair Slope	0.08
Collegecreek-----	25	Poor Wind erosion	0.00	Fair Slope	0.08
230: Powwatka-----	85	Fair Depth to bedrock Droughty	0.10 0.72	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.98
231: Powwatka-----	85	Fair Depth to bedrock Droughty	0.10 0.72	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.98
232: Powwatka-----	85	Fair Depth to bedrock Droughty	0.10 0.72	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.98
233: Powwatka-----	85	Fair Depth to bedrock Droughty	0.10 0.72	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.98
234: Puzzlecreek-----	85	Poor Stone content Droughty Cobble content Too acid Depth to bedrock	0.00 0.02 0.79 0.95 0.99	Poor Depth to bedrock Stone content Slope Cobble content	0.00 0.00 0.00 0.02
235: Ramo-----	85	Poor Too clayey Low organic matter content Too acid	0.00 0.12 0.97	Poor Low strength Shrink-swell	0.00 0.53
236: Ramo-----	85	Poor Too clayey Low organic matter content Too acid	0.00 0.12 0.97	Poor Low strength Shrink-swell	0.00 0.53
237: Ramo-----	85	Poor Too clayey Low organic matter content Too acid	0.00 0.12 0.97	Poor Low strength Slope Shrink-swell	0.00 0.08 0.53
238: Ramo-----	50	Poor Too clayey Low organic matter content Too acid	0.00 0.12 0.97	Poor Low strength Shrink-swell	0.00 0.53

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
238: Conley-----	35	Poor Too clayey Low organic matter content Water erosion	0.00 0.12 0.90	Poor Low strength Wetness depth Shrink-swell	0.00 0.53 0.77
239: Reavis-----	85	Fair Carbonate content Water erosion	0.68 0.99	Good	
240: Redmount-----	85	Fair Low organic matter content	0.12	Good	
241: Redmount-----	85	Fair Low organic matter content	0.12	Good	
242: Redmount-----	85	Fair Low organic matter content	0.12	Good	
243: Redmount-----	50	Fair Low organic matter content	0.12	Good	
Cheval-----	35	Fair Low organic matter content	0.88	Fair Wetness depth	0.53
244: Riverwash-----	80	Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
Fivebit-----	15	Poor Droughty Depth to bedrock Low organic matter content	0.00 0.00 0.50	Poor Depth to bedrock Slope	0.00 0.00
247: Rock outcrop-----	35	Not rated		Not rated	
Anatone-----	30	Poor Droughty Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.76	Poor Depth to bedrock Slope Stone content Cobble content	0.00 0.00 0.71 0.95
Imnaha-----	20	Fair Depth to bedrock Droughty	0.10 0.61	Poor Slope Depth to bedrock	0.00 0.00

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
248: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Stone content	0.00	Stone content	0.71
		Cobble content	0.76	Cobble content	0.95
Imnaha-----	15	Fair		Poor	
		Depth to bedrock	0.10	Depth to bedrock	0.00
		Droughty	0.61	Slope	0.00
249: Rock outcrop-----	50	Not rated		Not rated	
Imnaha-----	20	Fair		Poor	
		Depth to bedrock	0.10	Depth to bedrock	0.00
		Droughty	0.61	Slope	0.00
Cherrycreek-----	20	Poor		Poor	
		Stone content	0.00	Slope	0.00
		Cobble content	0.44	Cobble content	0.00
		Droughty	0.99	Stone content	0.00
				Depth to bedrock	0.82
250: Rock outcrop-----	50	Not rated		Not rated	
Linecreek-----	20	Fair		Poor	
		Stone content	0.64	Slope	0.00
		Cobble content	0.86	Cobble content	0.01
		Low organic matter content	0.88	Stone content	0.71
Anatone-----	15	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Stone content	0.00	Stone content	0.71
		Cobble content	0.76	Cobble content	0.95
251: Rock outcrop-----	45	Not rated		Not rated	
Rockly-----	25	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Cobble content	0.32	Cobble content	0.98
		Low organic matter content	0.88		
Dixiejett-----	20	Fair		Poor	
		Droughty	0.05	Slope	0.00
		Low organic matter content	0.88	Depth to bedrock	0.07
		Stone content	0.99		
252: Rockly-----	35	Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Slope	0.00
		Cobble content	0.32	Cobble content	0.98
		Low organic matter content	0.88		
Rock outcrop-----	30	Not rated		Not rated	



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
252: Copperfield-----	20	Fair Cobble content Droughty	0.52 0.96	Poor Slope Cobble content Shrink-swell	0.00 0.03 0.82
253: Rockly-----	35	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.98
Rock outcrop-----	25	Not rated		Not rated	
Lickskillet-----	25	Poor Droughty Depth to bedrock Stone content Cobble content Low organic matter content	0.00 0.00 0.00 0.05 0.88	Poor Depth to bedrock Slope Cobble content Stone content	0.00 0.00 0.13 0.55
254: Rondowa-----	90	Fair Low organic matter content Cobble content Stone content	0.12 0.99 0.99	Fair Cobble content	0.89
255: Rondowa-----	90	Fair Low organic matter content Cobble content Stone content	0.12 0.99 0.99	Fair Cobble content	0.89
256: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.95	Fair Cobble content Stone content	0.64 0.91
257: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.95	Fair Slope Cobble content Stone content	0.08 0.64 0.91
258: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.95	Poor Slope Cobble content Stone content	0.00 0.64 0.91
259: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.95	Fair Slope Cobble content Stone content	0.08 0.64 0.91

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
260: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.95	Poor Slope Cobble content Stone content	0.00 0.64 0.91
261: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.96	Fair Cobble content Stone content	0.74 0.91
262: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.96	Fair Slope Cobble content Stone content	0.08 0.74 0.91
263: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.96	Poor Slope Cobble content Stone content	0.00 0.74 0.91
264: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.96	Fair Slope Cobble content Stone content	0.08 0.74 0.91
265: Rondowa-----	90	Fair Low organic matter content Stone content Cobble content	0.12 0.81 0.96	Poor Slope Cobble content Stone content	0.00 0.74 0.91
266: Rubble land-----	70	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
267: Sag-----	85	Fair Water erosion	0.90	Fair Slope Shrink-swell	0.08 0.99
268: Sag-----	85	Fair Water erosion	0.90	Poor Slope Shrink-swell	0.00 0.99
269: Sag-----	85	Fair Water erosion	0.90	Poor Slope Shrink-swell	0.00 0.99
270: Schrier-----	85	Fair Water erosion	0.99	Good	

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
271: Schrier-----	55	Fair Water erosion	0.99	Fair Slope	0.08
Almota-----	30	Fair Carbonate content Water erosion Depth to bedrock	0.80 0.90 0.99	Poor Depth to bedrock Slope	0.00 0.08
272: Schrier-----	50	Fair Water erosion	0.99	Poor Slope	0.00
Almota-----	25	Fair Carbonate content Water erosion Depth to bedrock	0.80 0.90 0.99	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	10	Not rated		Not rated	
273: Schuelke-----	55	Fair Droughty Cobble content Depth to bedrock Carbonate content Low organic matter content Water erosion	0.28 0.63 0.79 0.80 0.88 0.90	Poor Depth to bedrock Cobble content Shrink-swell Slope	0.00 0.12 0.87 0.98
Schrier-----	15	Fair Water erosion	0.99	Fair Slope	0.98
Rockly-----	15	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Slope Cobble content	0.00 0.98 0.98
274: Silverlake-----	85	Fair Low organic matter content Water erosion	0.88 0.99	Fair Depth to cemented pan Shrink-swell	0.04 0.66
275: Slicklog-----	85	Fair Stone content Low organic matter content Too acid	0.48 0.88 0.95	Fair Slope	0.08
276: Slicklog-----	50	Fair Stone content Low organic matter content Too acid	0.48 0.88 0.95	Poor Slope	0.00
Eastpine-----	35	Poor Droughty Cobble content Depth to bedrock	0.00 0.87 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.10

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
277: Slicklog-----	55	Fair Stone content Low organic matter content Too acid	0.48 0.88 0.95	Poor Slope	0.00
Eastpine-----	20	Poor Droughty Cobble content Depth to bedrock	0.00 0.87 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.10
Rock outcrop-----	10	Not rated		Not rated	
278: Slicklog-----	50	Fair Stone content Low organic matter content Too acid	0.48 0.88 0.95	Poor Slope	0.00
Wintercanyon-----	25	Poor Droughty Depth to bedrock Too acid	0.00 0.00 0.84	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	10	Not rated		Not rated	
279: Snell-----	85	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.99
280: Snell-----	65	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.96
Harlow-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.86
281: Snell-----	60	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Slope Shrink-swell Cobble content	0.00 0.00 0.00 0.08 0.12 0.96
Harlow-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
282: Snell-----	50	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Slope Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.00 0.12 0.96
Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
283: Snell-----	55	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Slope Shrink-swell Cobble content	0.00 0.00 0.00 0.08 0.12 0.96
Harlow-----	30	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86
284: Snell-----	65	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.99
Harlow-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.95	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.95
285: Snell-----	35	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Stone content Low strength Slope Shrink-swell Cobble content	0.00 0.00 0.00 0.08 0.12 0.96
Harlow-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86
Imnaha-----	25	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.08

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
286: Snell-----	35	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Slope Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.00 0.12 0.96
Harlow-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Imnaha-----	25	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
287: Snell-----	40	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Slope Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.00 0.12 0.96
Harlow-----	30	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
Rock outcrop-----	15	Not rated		Not rated	
288: Snell-----	35	Poor Droughty Stone content Too clayey Depth to bedrock	0.00 0.00 0.08 0.10	Poor Depth to bedrock Slope Stone content Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.00 0.12 0.96
Imnaha-----	25	Fair Depth to bedrock Droughty	0.10 0.61	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	25	Not rated		Not rated	
289: Snow-----	85	Fair Low organic matter content Water erosion	0.88 0.90	Good	
290: Sopher-----	85	Poor Too clayey Low organic matter content	0.00 0.88	Fair Slope Depth to bedrock Shrink-swell Low strength	0.08 0.12 0.27 0.78

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
291: Sopher-----	85	Poor Too clayey Low organic matter content	0.00 0.88	Poor Slope Depth to bedrock Shrink-swell Low strength	0.00 0.12 0.27 0.78
292: Sopher-----	60	Poor Too clayey Low organic matter content	0.00 0.88	Poor Slope Depth to bedrock Shrink-swell Low strength	0.00 0.12 0.27 0.78
Gwinly-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
293: Sopher-----	50	Poor Too clayey Low organic matter content	0.00 0.88	Fair Slope Depth to bedrock Shrink-swell Low strength	0.08 0.12 0.27 0.78
Gwinly-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Low strength Slope Shrink-swell Cobble content	0.00 0.00 0.08 0.12 0.13
294: Sopher-----	50	Poor Too clayey Low organic matter content	0.00 0.88	Poor Slope Depth to bedrock Shrink-swell Low strength	0.00 0.12 0.27 0.78
Gwinly-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content	0.00 0.00 0.00 0.01	Poor Depth to bedrock Slope Low strength Shrink-swell Cobble content	0.00 0.00 0.00 0.12 0.13
295: Sturgill-----	85	Fair Water erosion	0.99	Poor Wetness depth Low strength Shrink-swell	0.00 0.00 0.98
296: Sturgill-----	45	Fair Water erosion	0.99	Poor Wetness depth Low strength Shrink-swell	0.00 0.00 0.98
Eggleson-----	40	Poor Too sandy Droughty Low organic matter content Cobble content	0.00 0.00 0.88 0.99	Fair Cobble content Wetness depth	0.50 0.89

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
297: Sweitberg-----	85	Fair Depth to bedrock	0.90	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.34
298: Sweitberg-----	85	Fair Depth to bedrock	0.90	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.34
299: Sweiting-----	85	Poor Too clayey Depth to bedrock Too acid Droughty Water erosion	0.00 0.71 0.95 0.98 0.99	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12
300: Sweiting-----	85	Poor Too clayey Depth to bedrock Too acid Droughty Water erosion	0.00 0.71 0.95 0.98 0.99	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.12
301: Sweiting-----	50	Poor Too clayey Depth to bedrock Too acid Droughty Water erosion	0.00 0.71 0.95 0.98 0.99	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12
Harlow-----	40	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.86
302: Sweiting-----	50	Poor Too clayey Depth to bedrock Too acid Droughty Water erosion	0.00 0.71 0.95 0.98 0.99	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.12
Harlow-----	35	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.08 0.12 0.86
303: Sweiting-----	50	Poor Too clayey Depth to bedrock Too acid Droughty Water erosion	0.00 0.71 0.95 0.98 0.99	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.12



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
303: Klicker-----	40	Poor Droughty Depth to bedrock Low organic matter content Cobble content Too acid	 0.00 0.10 0.12  0.41 0.99	Poor Depth to bedrock Slope Cobble content Shrink-swell	 0.00 0.08 0.29 0.87
304: Syrupcreek-----	85	Poor Wind erosion Depth to bedrock Droughty Stone content	 0.00 0.35 0.96 0.98	Poor Depth to bedrock	0.00
305: Syrupcreek-----	60	Poor Wind erosion Depth to bedrock Droughty Stone content	 0.00 0.35 0.96 0.98	Poor Depth to bedrock	0.00
Anatone-----	25	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.00 0.76	Poor Depth to bedrock Stone content Cobble content	 0.00 0.71 0.95
306: Syrupcreek-----	60	Poor Wind erosion Depth to bedrock Droughty Stone content	 0.00 0.35 0.96 0.98	Poor Depth to bedrock	0.00
Lowerbluff-----	25	Poor Wind erosion Depth to bedrock Droughty Too acid	 0.00 0.00 0.30 0.84	Poor Depth to bedrock	0.00
307: Syrupcreek-----	55	Poor Wind erosion Depth to bedrock Droughty Stone content	 0.00 0.35 0.96 0.98	Poor Depth to bedrock Slope	 0.00 0.08
Tamara-----	30	Poor Wind erosion Water erosion Too acid	 0.00 0.90 0.95	Fair Slope Low strength	 0.08 0.22
308: Syrupcreek-----	65	Poor Wind erosion Depth to bedrock Droughty Stone content	 0.00 0.35 0.96 0.98	Poor Depth to bedrock Slope	 0.00 0.00
Tamara-----	20	Poor Wind erosion Water erosion Too acid	 0.00 0.90 0.95	Poor Slope Low strength	 0.00 0.22

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
309: Tamara-----	65	Poor Wind erosion Water erosion Too acid	0.00 0.90 0.95	Fair Low strength	0.22
Sherod-----	20	Poor Depth to bedrock Droughty	0.00 0.00	Poor Depth to bedrock Wetness depth Low strength Shrink-swell Cobble content	0.00 0.04 0.22 0.74 0.99
310: Tamara-----	45	Poor Wind erosion Water erosion Too acid	0.00 0.90 0.95	Fair Low strength	0.22
Syrupcreek-----	40	Poor Wind erosion Depth to bedrock Droughty Stone content	0.00 0.35 0.96 0.98	Poor Depth to bedrock	0.00
311: Tamarackcanyon-----	40	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	0.00 0.10 0.88 0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	0.00 0.00 0.14 0.19 0.73 0.78
Linecreek-----	25	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
Harlow-----	20	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
312: Tamarackcanyon-----	65	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	0.00 0.10 0.88 0.93 0.95 0.99	Poor Depth to bedrock Stone content Shrink-swell Cobble content Low strength	0.00 0.14 0.19 0.73 0.78
Lowerbluff-----	20	Poor Wind erosion Depth to bedrock Droughty Too acid	0.00 0.00 0.30 0.84	Poor Depth to bedrock	0.00

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
313: Tamarackcanyon-----	40	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	 0.00 0.10 0.88  0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	 0.00 0.08 0.14 0.19 0.73 0.78
Olot-----	25	Poor Wind erosion Depth to bedrock Water erosion Too acid	 0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	 0.00 0.08 0.94
Harlow-----	20	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	 0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	 0.00 0.08 0.12 0.86
314: Tamarackcanyon-----	40	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	 0.00 0.10 0.88  0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	 0.00 0.00 0.14 0.19 0.73 0.78
Olot-----	25	Poor Wind erosion Depth to bedrock Water erosion Too acid	 0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	 0.00 0.00 0.94
Harlow-----	20	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	 0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	 0.00 0.00 0.12 0.86
315: Tannahill-----	35	Poor Stone content Droughty Cobble content	 0.00 0.39 0.99	Poor Slope Stone content Cobble content Depth to bedrock	 0.00 0.00 0.38 0.39
Schrier-----	35	Fair Water erosion	 0.99	Poor Slope	 0.00
Rock outcrop-----	15	Not rated		Not rated	
316: Tannahill-----	35	Poor Stone content Droughty Cobble content	 0.00 0.39 0.99	Poor Slope Stone content Cobble content Depth to bedrock	 0.00 0.00 0.38 0.39

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material	Potential as source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
316: Schuelke-----	30	Fair Droughty Cobble content Depth to bedrock Carbonate content Low organic matter content Water erosion	0.28 0.63 0.79 0.80 0.88 0.90	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.00 0.12 0.87
Lickskillet-----	25	Poor Droughty Depth to bedrock Stone content Cobble content Low organic matter content	0.00 0.00 0.00 0.05 0.88	Poor Depth to bedrock Slope Cobble content Stone content	0.00 0.00 0.13 0.55
317: Thiessen-----	85	Poor Droughty Too clayey Cobble content Depth to bedrock	0.00 0.00 0.82 0.84	Poor Depth to bedrock Slope Cobble content Shrink-swell	0.00 0.08 0.25 0.87
318: Threebuck-----	70	Poor Wind erosion Too clayey Stone content Too acid	0.00 0.00 0.73 0.95	Fair Stone content Depth to bedrock Cobble content Shrink-swell	0.12 0.29 0.69 0.95
Harlow-----	15	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.86
319: Threebuck-----	35	Poor Wind erosion Too clayey Stone content Too acid	0.00 0.00 0.73 0.95	Poor Slope Stone content Depth to bedrock Cobble content Shrink-swell	0.00 0.12 0.29 0.69 0.95
Linecreek-----	30	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
Harlow-----	20	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	0.00 0.00 0.12 0.86
320: Threebuck-----	50	Poor Wind erosion Too clayey Stone content Too acid	0.00 0.00 0.73 0.95	Fair Slope Stone content Depth to bedrock Cobble content Shrink-swell	0.08 0.12 0.29 0.69 0.95

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
320: Tamarackcanyon-----	35	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	 0.00 0.10 0.88  0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	 0.00 0.08 0.14 0.19 0.73 0.78
321: Threebuck-----	50	Poor Wind erosion Too clayey Stone content Too acid	 0.00 0.00 0.73 0.95	Poor Slope Stone content Depth to bedrock Cobble content Shrink-swell	 0.00 0.12 0.29 0.69 0.95
Tamarackcanyon-----	35	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	 0.00 0.10 0.88  0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	 0.00 0.00 0.14 0.19 0.73 0.78
322: Threebuck-----	35	Poor Wind erosion Too clayey Stone content Too acid	 0.00 0.00 0.73 0.95	Poor Slope Stone content Depth to bedrock Cobble content Shrink-swell	 0.00 0.12 0.29 0.69 0.95
Tamarackcanyon-----	30	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	 0.00 0.10 0.88  0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	 0.00 0.00 0.14 0.19 0.73 0.78
Harlow-----	20	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	 0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Slope Shrink-swell Cobble content	 0.00 0.00 0.12 0.86
323: Threebuck-----	35	Poor Wind erosion Too clayey Stone content Too acid	 0.00 0.00 0.73 0.95	Poor Slope Stone content Depth to bedrock Cobble content Shrink-swell	 0.00 0.12 0.29 0.69 0.95
Tamarackcanyon-----	30	Poor Too clayey Stone content Low organic matter content Droughty Too acid Depth to bedrock	 0.00 0.10 0.88  0.93 0.95 0.99	Poor Depth to bedrock Slope Stone content Shrink-swell Cobble content Low strength	 0.00 0.00 0.14 0.19 0.73 0.78

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
323: Linecreek-----	20	Fair Stone content Cobble content Low organic matter content	0.64 0.86 0.88	Poor Slope Cobble content Stone content	0.00 0.01 0.71
324: Tippett-----	70	Poor Too clayey Water erosion	0.00 0.99	Poor Low strength Shrink-swell Depth to bedrock	0.00 0.22 0.68
Harlow-----	20	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	0.00 0.12 0.86
325: Tippett-----	70	Poor Too clayey Water erosion	0.00 0.99	Poor Low strength Shrink-swell Depth to bedrock	0.00 0.22 0.68
Zumwalt-----	20	Poor Too clayey Low organic matter content Depth to bedrock	0.00 0.32 0.97	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.15
326: Tolo-----	85	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Low strength Shrink-swell	0.00 0.96
327: Tolo-----	85	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Low strength Slope Shrink-swell	0.00 0.08 0.96
328: Tolo, fan-----	85	Poor Wind erosion Water erosion	0.00 0.68	Poor Low strength Shrink-swell	0.00 0.98
329: Tolo-----	50	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Low strength Slope Shrink-swell	0.00 0.08 0.96
Getaway-----	35	Fair Cobble content	0.70	Fair Cobble content Slope Depth to bedrock Shrink-swell	0.03 0.08 0.39 0.91
330: Tolo-----	50	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Slope Low strength Shrink-swell	0.00 0.00 0.96

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
330: Getaway-----	35	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
331: Tolo-----	50	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Low strength Slope Shrink-swell	0.00 0.08 0.96
Getaway-----	35	Fair Cobble content	0.70	Fair Cobble content Slope Depth to bedrock Shrink-swell	0.03 0.08 0.39 0.91
332: Tolo-----	50	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Slope Low strength Shrink-swell	0.00 0.00 0.96
Getaway-----	35	Fair Cobble content	0.70	Poor Slope Cobble content Depth to bedrock Shrink-swell	0.00 0.03 0.39 0.91
333: Tolo-----	50	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Low strength Shrink-swell	0.00 0.96
Olot-----	35	Poor Wind erosion Depth to bedrock Water erosion Too acid	0.00 0.93 0.99 0.99	Poor Depth to bedrock Cobble content	0.00 0.94
334: Tolo-----	55	Poor Wind erosion Water erosion Low organic matter content	0.00 0.68 0.88	Poor Low strength Slope Shrink-swell	0.00 0.08 0.96
Olot-----	30	Poor Wind erosion Depth to bedrock Water erosion Too acid	0.00 0.93 0.99 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.94
335: Topper-----	85	Poor Too alkaline Low organic matter content Water erosion Carbonate content	0.00 0.88 0.90 0.97	Good	

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
336: Topper-----	85	Poor Too alkaline Low organic matter content Water erosion Carbonate content	 0.00 0.88  0.90 0.97	Good	
337: Topper-----	85	Poor Too alkaline Low organic matter content Water erosion Carbonate content	 0.00 0.88  0.90 0.97	Fair Slope	0.08
338: Topper-----	85	Poor Too alkaline Low organic matter content Water erosion Carbonate content	 0.00 0.88  0.90 0.97	Fair Slope	0.08
339: Troutmeadows-----	65	Poor Wind erosion Depth to bedrock Too acid	 0.00 0.58 0.95	Poor Depth to bedrock Cobble content	0.00 0.99
Crawfish-----	20	Poor Droughty Depth to bedrock Cobble content Too acid	 0.00 0.00 0.08 0.84	Poor Depth to bedrock Cobble content	0.00 0.79
340: Tuckerdowns-----	85	Fair Low organic matter content Carbonate content Droughty	 0.24  0.97 0.99	Good	
341: Tuckerdowns-----	85	Fair Low organic matter content Carbonate content Droughty	 0.24  0.97 0.99	Good	
342: Tuckerdowns-----	85	Fair Low organic matter content Carbonate content Droughty	 0.24  0.97 0.99	Fair Slope	0.08
343: Vandamine-----	60	Fair Low organic matter content Too acid	 0.12  0.84	Poor Slope	0.00
Bordengulch-----	25	Fair Too acid Depth to bedrock Droughty	 0.84 0.90 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.91



Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
344: Vandamine-----	50	Fair Low organic matter content Too acid	0.12 0.84	Poor Slope	0.00
Bordengulch-----	25	Fair Too acid Depth to bedrock Droughty	0.84 0.90 0.99	Poor Depth to bedrock Slope Cobble content	0.00 0.00 0.91
Rock outcrop-----	10	Not rated		Not rated	
345: Veazie-----	85	Fair Low organic matter content	0.88	Good	
346: Voats-----	50	Fair Low organic matter content Droughty Stone content Cobble content	0.12 0.44 0.88 0.92	Fair Cobble content Stone content	0.52 0.97
Veazie-----	35	Fair Low organic matter content	0.88	Good	
347: Volstead-----	35	Fair Too clayey Low organic matter content Water erosion	0.08 0.88 0.99	Poor Low strength Depth to bedrock Shrink-swell	0.00 0.39 0.91
Quirk-----	30	Poor Too clayey Low organic matter content Depth to bedrock Water erosion	0.00 0.88 0.97 0.99	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.88
Bocker-----	20	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
348: Volstead-----	35	Fair Too clayey Low organic matter content Water erosion	0.08 0.88 0.99	Poor Low strength Slope Depth to bedrock Shrink-swell	0.00 0.08 0.39 0.91
Quirk-----	30	Poor Too clayey Low organic matter content Depth to bedrock Water erosion	0.00 0.88 0.97 0.99	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.08 0.88
Bocker-----	20	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Slope Cobble content	0.00 0.08 0.88

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
349: Wallowa-----	50	Fair Depth to bedrock Water erosion	0.46 0.99	Poor Depth to bedrock	0.00
Bocker-----	40	Poor Droughty Depth to bedrock Cobble content	0.00 0.00 0.02	Poor Depth to bedrock Cobble content	0.00 0.88
350: Watama-----	85	Fair Depth to bedrock Droughty	0.16 0.60	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.22 0.87
351: Watama-----	85	Fair Depth to bedrock Droughty	0.16 0.60	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.22 0.87
352: Watama-----	50	Fair Depth to bedrock Droughty	0.16 0.60	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.22 0.87
Rockly-----	35	Poor Droughty Depth to bedrock Cobble content Low organic matter content	0.00 0.00 0.32 0.88	Poor Depth to bedrock Cobble content	0.00 0.98
353: Water-----	95	Not rated		Not rated	
354: Wilkins-----	85	Fair Low organic matter content Water erosion	0.12 0.99	Poor Low strength Wetness depth Shrink-swell	0.00 0.04 0.73
355: Wilkins-----	55	Fair Low organic matter content Water erosion	0.12 0.99	Poor Low strength Wetness depth Shrink-swell	0.00 0.04 0.73
Feaginranch-----	30	Poor Too clayey Low organic matter content Too acid	0.00 0.12 0.99	Poor Wetness depth Low strength Shrink-swell	0.00 0.00 0.21
356: Wolot-----	85	Poor Wind erosion Low organic matter content Water erosion	0.00 0.60 0.90	Poor Low strength Shrink-swell	0.00 0.96
357: Zumwalt-----	65	Poor Too clayey Low organic matter content Depth to bedrock	0.00 0.32 0.97	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.15

Table 14b.--Construction Materials (Part II)--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
357: Harlow-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	 0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	 0.00 0.12 0.86
358: Zumwalt-----	65	Poor Too clayey Low organic matter content Depth to bedrock	 0.00 0.32 0.97	Poor Depth to bedrock Low strength Shrink-swell	 0.00 0.00 0.15
Harlow-----	25	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	 0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	 0.00 0.12 0.86
359: Zumwalt-----	65	Poor Too clayey Low organic matter content Depth to bedrock	 0.00 0.32 0.97	Poor Depth to bedrock Low strength Shrink-swell	 0.00 0.00 0.15
Harlow-----	20	Poor Too clayey Droughty Depth to bedrock Cobble content Stone content	 0.00 0.00 0.00 0.81 0.98	Poor Depth to bedrock Shrink-swell Cobble content	 0.00 0.12 0.86

Table 15.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Akerite-----	85	Very limited Seepage	1.00	Somewhat limited Piping Depth to saturated zone	0.93 0.43
2: Akerite-----	85	Very limited Seepage Slope	1.00 0.01	Somewhat limited Piping Depth to saturated zone	0.93 0.43
3: Albee-----	45	Somewhat limited Seepage Depth to bedrock	0.70 0.56	Very limited Piping Thin layer	1.00 0.56
Anatone-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
4: Albee-----	50	Somewhat limited Seepage Depth to bedrock	0.70 0.56	Very limited Piping Thin layer	1.00 0.56
Bocker-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
5: Analulu-----	30	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.83 0.70	Somewhat limited Thin layer	0.83
Slicklog-----	30	Very limited Seepage Slope	1.00 0.97	Somewhat limited Seepage	0.03
Bluecanyon-----	30	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Seepage	1.00 0.25
6: Analulu-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.83 0.70	Somewhat limited Thin layer	0.83
Slicklog-----	35	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.03
Rock outcrop-----	10	Not rated		Not rated	
7: Anatone-----	50	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
7: Bocker-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
8: Anatone-----	50	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
Bocker-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
9: Anatone-----	50	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Bocker-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
10: Anatone-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
Bocker-----	30	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
Fivebit-----	20	Very limited Depth to bedrock	1.00	Very limited Thin layer Seepage	1.00 0.44
11: Anatone-----	40	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Bocker-----	25	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Fivebit-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Seepage	1.00 0.44
12: Anatone-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Cherrycreek-----	30	Very limited Seepage Slope Depth to bedrock	1.00 0.97 0.04	Very limited Large stones content Seepage Thin layer	1.00 0.38 0.04

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
12: Imnaha-----	20	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
13: Anatone-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Imnaha-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
Rock outcrop-----	10	Not rated		Not rated	
14: Anatone-----	45	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Kamela-----	40	Somewhat limited Depth to bedrock Slope Seepage	0.99 0.97 0.70	Very limited Piping Thin layer Large stones content	1.00 0.99 0.18
15: Anatone-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Klicker-----	30	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Rock outcrop-----	10	Not rated		Not rated	
16: Anatone-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Linecreek-----	25	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.83 0.38
Rock outcrop-----	10	Not rated		Not rated	
17: Anatone-----	50	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Olot-----	35	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.66 0.04	Somewhat limited Seepage	0.12

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
18: Anatone-----	45	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Clearline-----	15	Very limited Seepage Slope Depth to bedrock	1.00 1.00 0.02	Somewhat limited Thin layer Large stones content	0.02 0.01
19: Anatone-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Fivebit-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Seepage	1.00 0.44
20: Anatone-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
21: Balm-----	50	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.12
Catherine-----	40	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 1.00
22: Bittercreek-----	65	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.13
Mippon-----	20	Very limited Seepage	1.00	Somewhat limited Seepage Large stones content	0.25 0.03
23: Bocker-----	85	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
24: Bocker-----	60	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
Anatone-----	15	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
25: Bocker-----	60	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
Anatone-----	15	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
26: Bocker-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Clearline-----	20	Very limited Seepage Slope Depth to bedrock	1.00 1.00 0.02	Somewhat limited Thin layer Large stones content	0.02 0.01
Rock outcrop-----	20	Not rated		Not rated	
27: Bocker-----	40	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Imnaha-----	30	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
Rock outcrop-----	15	Not rated		Not rated	
28: Bridgewater-----	90	Very limited Seepage	1.00	Very limited Large stones content Seepage	1.00 0.25
29: Btree-----	45	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.01	Somewhat limited Seepage	0.12
Flycreek-----	40	Somewhat limited Depth to bedrock Slope	0.69 0.21	Somewhat limited Piping	0.85



Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
30:					
Btree-----	45	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.01	Somewhat limited Seepage	0.12
Flycreek-----	40	Somewhat limited Slope Depth to bedrock	0.97 0.69	Somewhat limited Piping	0.85
31:					
Btree-----	30	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.01	Somewhat limited Seepage	0.12
Flycreek-----	30	Somewhat limited Slope Depth to bedrock	0.97 0.69	Somewhat limited Piping	0.85
Anatone-----	30	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
32:					
Btree-----	30	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.01	Somewhat limited Seepage	0.12
Flycreek-----	30	Very limited Slope Depth to bedrock	1.00 0.69	Somewhat limited Piping	0.85
Anatone-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
33:					
Btree-----	40	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.01	Somewhat limited Seepage	0.12
Klicker-----	30	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Anatone-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
34:					
Bucketlake-----	85	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.06
35:					
Bucketlake-----	85	Very limited Seepage Slope	1.00 0.97	Somewhat limited Seepage	0.06

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
36: Buford-----	45	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Very limited Piping Thin layer	1.00 0.11
Anatone-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
37: Buford-----	45	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Very limited Piping Thin layer	1.00 0.11
Bocker-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
38: Bunchpoint-----	85	Somewhat limited Depth to bedrock Seepage	0.81 0.70	Very limited Piping Thin layer	1.00 0.81
39: Bunchpoint-----	45	Somewhat limited Depth to bedrock Seepage	0.81 0.70	Very limited Piping Thin layer	1.00 0.81
Bocker-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
40: Chard-----	90	Very limited Seepage Slope	1.00 0.21	Not limited	
41: Cherrycreek-----	50	Very limited Seepage Depth to bedrock	1.00 0.04	Very limited Large stones content Seepage Thin layer	1.00 0.38 0.04
Imnaha-----	35	Somewhat limited Depth to bedrock Seepage	0.98 0.70	Somewhat limited Thin layer	0.98
42: Cherrycreek-----	50	Very limited Seepage Slope Depth to bedrock	1.00 0.21 0.04	Very limited Large stones content Seepage Thin layer	1.00 0.38 0.04
Imnaha-----	20	Somewhat limited Depth to bedrock Seepage Slope	0.98 0.70 0.21	Somewhat limited Thin layer	0.98
Imnaha, moist-----	15	Somewhat limited Depth to bedrock Seepage Slope	0.98 0.70 0.21	Somewhat limited Thin layer	0.98

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
43: Cherrycreek-----	40	Very limited Seepage Slope Depth to bedrock	 1.00 1.00 0.04	Very limited Large stones content Seepage Thin layer	 1.00  0.38 0.04
Imnaha-----	35	Very limited Slope Depth to bedrock Seepage	 1.00 0.98 0.70	Somewhat limited Thin layer	 0.98
Rock outcrop-----	10	Not rated		Not rated	
44: Cherrycreek-----	40	Very limited Seepage Slope Depth to bedrock	 1.00 0.97 0.04	Very limited Large stones content Seepage Thin layer	 1.00  0.38 0.04
Limberjim-----	35	Somewhat limited Slope Seepage Depth to bedrock	 0.97 0.70 0.42	Somewhat limited Thin layer Large stones content	 0.42 0.05
Rock outcrop-----	10	Not rated		Not rated	
45: Chesnimnus-----	85	Very limited Seepage	 1.00	Very limited Piping Seepage	 1.00 0.03
46: Chesnimnus-----	85	Very limited Seepage	 1.00	Very limited Piping Seepage	 1.00 0.03
47: Cheval-----	85	Very limited Seepage	 1.00	Very limited Depth to saturated zone Seepage	 1.00 0.25
48: Cloverland-----	90	Somewhat limited Seepage	 0.70	Somewhat limited Depth to saturated zone Piping	 0.95 0.25
49: Cloverland-----	90	Somewhat limited Seepage Slope	 0.70 0.01	Somewhat limited Depth to saturated zone Piping	 0.95 0.25
50: Conley-----	90	Somewhat limited Seepage	 0.70	Very limited Depth to saturated zone Piping	 1.00 0.49
51: Conley-----	90	Somewhat limited Seepage	 0.70	Very limited Depth to saturated zone Piping	 1.00 0.49

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
52: Copperfield-----	50	Somewhat limited Slope Seepage	0.97 0.70	Somewhat limited Large stones content Seepage	0.23 0.12
Thiessen-----	35	Somewhat limited Slope Depth to bedrock	0.97 0.74	Somewhat limited Thin layer Large stones content	0.74 0.18
53: Copperfield-----	40	Very limited Slope Seepage	1.00 0.70	Somewhat limited Large stones content Seepage	0.23 0.12
Thiessen-----	30	Very limited Slope Depth to bedrock	1.00 0.74	Somewhat limited Thin layer Large stones content	0.74 0.18
Rock outcrop-----	15	Not rated		Not rated	
54: Cowsly-----	90	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Very limited Depth to saturated zone Piping	1.00 0.92
55: Cowsly-----	90	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.10 0.01	Very limited Depth to saturated zone Piping	1.00 0.92
56: Cowsly-----	85	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Very limited Depth to saturated zone Piping	1.00 0.92
57: Cowsly, cobbly-----	60	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.10	Very limited Depth to saturated zone Piping	1.00 0.92
Cowsly-----	25	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Very limited Depth to saturated zone Piping	1.00 0.92
58: Cowsly, cobbly-----	60	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.10	Very limited Depth to saturated zone Piping	1.00 0.92
Cowsly-----	25	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Very limited Depth to saturated zone Piping	1.00 0.92
59: Cowsly-----	60	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Very limited Depth to saturated zone Piping	1.00 0.92

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
59: Howmeadows-----	15	Somewhat limited Depth to bedrock	0.95	Very limited Depth to saturated zone Thin layer	1.00 0.95
Sherod-----	15	Very limited Depth to bedrock	1.00	Very limited Depth to saturated zone Thin layer Piping	1.00 1.00 0.28
60: Demasters-----	50	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.29	Very limited Piping Thin layer	1.00 0.29
Snell-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
61: Dixiejett-----	35	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.33 0.04	Somewhat limited Seepage Thin layer	0.38 0.34
Lickskillet-----	30	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.12
Rockly-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
62: Doublecreek-----	40	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping Seepage	1.00 0.01
Flybow-----	30	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Seepage	1.00 0.12
Rock outcrop-----	15	Not rated		Not rated	
63: Doublecreek-----	55	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.01
Langrell-----	30	Very limited Seepage	1.00	Somewhat limited Seepage Large stones content	0.25 0.18
64: Doublecreek-----	45	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.01

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
64: Phys-----	40	Very limited Seepage	1.00	Somewhat limited Large stones content	0.01
65: Downards-----	45	Very limited Slope Seepage	1.00 0.05	Somewhat limited Large stones content	0.44
Anatone-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
66: Downards-----	50	Somewhat limited Slope Seepage	0.97 0.05	Somewhat limited Large stones content	0.44
Emily-----	20	Somewhat limited Slope Seepage	0.97 0.70	Somewhat limited Large stones content	0.04
Sopher-----	20	Somewhat limited Slope Depth to bedrock	0.97 0.29	Somewhat limited Thin layer Piping	0.29 0.25
67: Downards-----	60	Somewhat limited Slope Depth to bedrock Seepage	0.21 0.08 0.05	Somewhat limited Large stones content Thin layer	0.44 0.08
Klicker-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
68: Downards-----	60	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.08 0.05	Somewhat limited Large stones content Thin layer	0.44 0.08
Klicker-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
69: Downeygulch-----	50	Somewhat limited Depth to bedrock Seepage	0.98 0.70	Very limited Piping Thin layer	1.00 0.98
Lowerbluff-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Seepage	1.00 0.01
70: Downeygulch-----	55	Somewhat limited Depth to bedrock Seepage Slope	0.98 0.70 0.21	Very limited Piping Thin layer	1.00 0.98

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
70: Thirstygulch-----	30	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.25
71: Eggleson-----	85	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage Large stones content	0.86 0.82 0.01
72: Emily-----	55	Somewhat limited Seepage Slope	0.70 0.21	Somewhat limited Large stones content	0.04
Wolot-----	30	Very limited Seepage Slope	1.00 0.21	Very limited Piping	1.00
73: Endoaquolls, mesic--	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Large stones content Seepage	1.00 0.47 0.05
74: Ferguson-----	85	Very limited Seepage	1.00	Somewhat limited Seepage Large stones content	0.25 0.01
75: Ferguson-----	85	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage Large stones content	0.25 0.01
76: Ferguson-----	85	Very limited Seepage Slope	1.00 0.97	Somewhat limited Seepage Large stones content	0.25 0.01
77: Ferguson-----	85	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage Large stones content	0.25 0.01
78: Ferguson-----	85	Very limited Seepage Slope	1.00 0.97	Somewhat limited Seepage Large stones content	0.25 0.01
79: Flybow-----	40	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Seepage	1.00 0.12
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
80: Flybow-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Seepage	1.00 0.12
Rubble land-----	30	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
81: Flycreek-----	65	Somewhat limited Depth to bedrock	0.69	Somewhat limited Piping	0.85
Flyvalley-----	20	Very limited Depth to bedrock	1.00	Very limited Piping Thin layer	1.00 1.00
82: Freels-----	85	Very limited Seepage	1.00	Very limited Piping	1.00
83: Geisercreek-----	85	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00
84: Gelsinger-----	85	Somewhat limited Seepage	0.04	Somewhat limited Piping	0.55
85: Gelsinger-----	85	Somewhat limited Seepage Slope	0.04 0.01	Somewhat limited Piping	0.55
86: Getaway-----	85	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
87: Getaway-----	85	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
88: Getaway-----	45	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
Anatone-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
89: Getaway-----	50	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
Harlow-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61



Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
90: Getaway-----	50	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
Harlow-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
91: Getaway-----	40	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
Harlow-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
Rock outcrop-----	15	Not rated		Not rated	
92: Getaway-----	35	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
Linecreek-----	30	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content Seepage	0.83 0.38
Anatone-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
93: Getaway-----	50	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.16	Somewhat limited Large stones content Thin layer	0.26 0.16
Snell-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
94: Gwin-----	55	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.47
Kettenbach-----	20	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content Seepage	0.98 0.74 0.12
Rock outcrop-----	10	Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
95: Gwin-----	55	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.47
Kettenbach-----	20	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content Seepage	0.98 0.74 0.12
Rock outcrop-----	10	Not rated		Not rated	
96: Gwin-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.47
Klickson-----	30	Very limited Slope Seepage	1.00 0.04	Somewhat limited Large stones content	0.85
Kettenbach-----	20	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content Seepage	0.98 0.74 0.12
97: Gwinly-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Kettenbach-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content Seepage	0.98 0.74 0.12
Rock outcrop-----	10	Not rated		Not rated	
98: Gwinly-----	40	Very limited Depth to bedrock Slope	1.00 0.06	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Mallory-----	35	Somewhat limited Depth to bedrock Slope	0.95 0.06	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25
99: Gwinly-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Mallory-----	35	Very limited Slope Depth to bedrock	1.00 0.95	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
100: Gwinly-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Mallory-----	25	Somewhat limited Depth to bedrock Slope	0.95 0.21	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25
Kettenbach-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content Seepage	0.98 0.74 0.12
101: Gwinly-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Mallory-----	25	Somewhat limited Slope Depth to bedrock	0.97 0.95	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25
Kettenbach-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content Seepage	0.98 0.74 0.12
102: Gwinly-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Mallory-----	25	Very limited Slope Depth to bedrock	1.00 0.95	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25
Kettenbach-----	25	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content Seepage	0.98 0.74 0.12
103: Gwinly-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Mallory-----	25	Very limited Slope Depth to bedrock	1.00 0.95	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
103: Rock outcrop-----	25	Not rated		Not rated	
104: Gwinly-----	50	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Rockly-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
105: Gwinly-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Rockly-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
Rock outcrop-----	20	Not rated		Not rated	
106: Gwinly-----	60	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Sopher-----	25	Very limited Slope Depth to bedrock	1.00 0.29	Somewhat limited Thin layer Piping	0.29 0.25
107: Gwinly-----	55	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Sopher-----	25	Very limited Slope Depth to bedrock	1.00 0.29	Somewhat limited Thin layer Piping	0.29 0.25
Rock outcrop-----	10	Not rated		Not rated	
108: Hapludolls, frigid--	35	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.86 0.10
Endoaquolls, frigid	30	Very limited Seepage	1.00	Very limited Depth to saturated zone Large stones content Seepage	1.00 0.85 0.38

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
108: Endoaquents, frigid	20	Very limited Seepage	1.00	Very limited Depth to saturated zone Large stones content Seepage	1.00 0.53 0.25
109: Harl-----	40	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content Seepage	0.55 0.38
Anatone-----	30	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
110: Harl-----	45	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.55 0.38
Anatone-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
111: Harl-----	45	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content Seepage	0.55 0.38
Getaway-----	40	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
112: Harl-----	50	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.55 0.38
Limberjim-----	25	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.42	Somewhat limited Thin layer Large stones content	0.42 0.05
Rock outcrop-----	10	Not rated		Not rated	
113: Harlow-----	60	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61
Bocker-----	25	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
114: Harlow-----	60	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
Bocker-----	25	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
115: Harlow-----	45	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
Bocker-----	40	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
116: Harlow-----	50	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61
Bocker-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
117: Harlow-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
Bocker-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
118: Harlow-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61
Imnaha-----	35	Somewhat limited Depth to bedrock Seepage	0.98 0.70	Somewhat limited Thin layer	0.98
Rock outcrop-----	10	Not rated		Not rated	
119: Harlow-----	40	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
Imnaha-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
Rock outcrop-----	10	Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
120: Harlow-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
Imnaha-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
Rock outcrop-----	10	Not rated		Not rated	
121: Harlow-----	50	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
Klicker-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
122: Harlow-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
Klicker-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
123: Harlow-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61
Snell-----	25	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Imnaha-----	25	Somewhat limited Depth to bedrock Seepage	0.98 0.70	Somewhat limited Thin layer	0.98
124: Harlow-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
Snell-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Imnaha-----	25	Somewhat limited Depth to bedrock Seepage Slope	0.98 0.70 0.21	Somewhat limited Thin layer	0.98

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
125: Harlow-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
Snell-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Imnaha-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
126: Harlow-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
Snell-----	25	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Rock outcrop-----	25	Not rated		Not rated	
127: Harlow-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
Tamarackcanyon-----	25	Very limited Slope Depth to bedrock	1.00 0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Linecreek-----	20	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.83 0.38
128: Harlow-----	40	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
Tamarackcanyon-----	25	Somewhat limited Slope Depth to bedrock	0.97 0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Olot-----	20	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.66 0.04	Somewhat limited Seepage	0.12



Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
129: Harlow-----	50	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
Threebuck-----	35	Somewhat limited Slope Depth to bedrock	0.97 0.19	Somewhat limited Large stones content	0.35
130: Hershal-----	85	Very limited Seepage	1.00	Very limited Depth to saturated zone	1.00
131: Hershal-----	50	Very limited Seepage	1.00	Very limited Depth to saturated zone	1.00
Voats-----	35	Very limited Seepage	1.00	Somewhat limited Large stones content Seepage	0.12 0.01
132: Hershal-----	35	Very limited Seepage	1.00	Very limited Depth to saturated zone	1.00
Voats-----	30	Very limited Seepage	1.00	Somewhat limited Large stones content Seepage	0.12 0.01
Veazie-----	20	Very limited Seepage	1.00	Not limited	
133: Howmeadows-----	50	Somewhat limited Depth to bedrock	0.95	Very limited Depth to saturated zone Thin layer	1.00 0.95
Wilkins-----	35	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.03
134: Hurwal-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00
135: Hurwal-----	90	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00
136: Hurwal, deep-----	85	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.01	Very limited Piping Thin layer	1.00 0.01
137: Hurwal, deep-----	85	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.01	Very limited Piping Thin layer	1.00 0.01

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
138: Hurwal-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00
139: Hurwal-----	90	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00
140: Hurwal-----	90	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00
141: Imnaha-----	55	Somewhat limited Depth to bedrock Seepage Slope	0.98 0.70 0.21	Somewhat limited Thin layer	0.98
Anatone-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
142: Imnaha-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
Imhaha, moist-----	30	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer Large stones content	0.98 0.01
Anatone-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
143: Imnaha-----	40	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
Bocker-----	25	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Clearline-----	20	Very limited Seepage Slope Depth to bedrock	1.00 0.97 0.02	Somewhat limited Thin layer Large stones content	0.02 0.01
144: Imnaha-----	45	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
Cherrycreek-----	30	Very limited Seepage Slope Depth to bedrock	1.00 0.97 0.04	Very limited Large stones content Seepage Thin layer	1.00 0.38 0.04

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
144: Anatone-----	15	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
145: Imnaha-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
Clearline-----	30	Very limited Seepage Slope Depth to bedrock	1.00 1.00 0.02	Somewhat limited Thin layer Large stones content	0.02 0.01
Rock outcrop-----	15	Not rated		Not rated	
146: Imnaha-----	45	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
Rock outcrop-----	25	Not rated		Not rated	
Cherrycreek-----	20	Very limited Seepage Slope Depth to bedrock	1.00 1.00 0.04	Very limited Large stones content Seepage Thin layer	1.00 0.38 0.04
147: Josset-----	85	Very limited Seepage	1.00	Somewhat limited Seepage Depth to saturated zone	0.64 0.43
148: Kahler-----	50	Somewhat limited Slope Seepage	0.97 0.70	Somewhat limited Piping	0.98
Anatone-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
149: Kahler-----	40	Very limited Slope Seepage	1.00 0.70	Somewhat limited Piping	0.98
Anatone-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Rock outcrop-----	10	Not rated		Not rated	
150: Kahler-----	35	Somewhat limited Slope Seepage	0.97 0.70	Somewhat limited Piping	0.98
Linecreek-----	30	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content Seepage	0.83 0.38

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
150: Getaway-----	20	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
151: Kahler-----	35	Very limited Slope Seepage	1.00 0.70	Somewhat limited Piping	0.98
Linecreek-----	35	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.83 0.38
Getaway-----	15	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
152: Klicker-----	85	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
153: Klicker-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
154: Klicker-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
155: Klicker-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
156: Klicker-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
157: Klicker-----	50	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Anatone-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
158: Klicker-----	50	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
158: Anatone-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
159: Klicker-----	50	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Anatone-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
160: Klicker-----	35	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Fivebit-----	30	Very limited Depth to bedrock	1.00	Very limited Thin layer Seepage	1.00 0.44
Anatone-----	20	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
161: Klicker-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Fivebit-----	30	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Seepage	1.00 0.44
Anatone-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
162: Klicker-----	50	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Harlow-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
163: Klicker-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Kamela-----	30	Very limited Slope Depth to bedrock Seepage	1.00 0.99 0.70	Very limited Piping Thin layer Large stones content	1.00 0.99 0.18

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
163: Fivebit-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Seepage	1.00 0.44
164: Klicker-----	55	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.44
Olot-----	30	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.66 0.04	Somewhat limited Seepage	0.12
165: Klicker-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content	0.98 0.44
Thirstygulch-----	30	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.25
Anatone-----	20	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
166: Klicker-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Somewhat limited Thin layer Large stones content	0.98 0.44
Thirstygulch-----	30	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.25
Anatone-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
167: Klicker-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
Rock outcrop-----	25	Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
168: Klickson-----	35	Somewhat limited Slope Seepage	0.97 0.04	Somewhat limited Large stones content	0.85

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
168: Anatone-----	25	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
Larabee-----	25	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.66	Somewhat limited Piping Thin layer	0.96 0.66
169: Klickson-----	35	Very limited Slope Seepage	1.00 0.04	Somewhat limited Large stones content	0.85
Anatone-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Larabee-----	25	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.66	Somewhat limited Piping Thin layer	0.96 0.66
170: Klickson-----	60	Somewhat limited Slope Seepage	0.21 0.04	Somewhat limited Large stones content	0.85
Larabee-----	25	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.66 0.21	Somewhat limited Piping Thin layer	0.96 0.66
171: Klickson-----	35	Somewhat limited Slope Seepage	0.97 0.04	Somewhat limited Large stones content	0.85
Larabee-----	30	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.66	Somewhat limited Piping Thin layer	0.96 0.66
Volstead-----	20	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.54 0.16	Somewhat limited Piping Thin layer	0.93 0.16
172: Langrell-----	85	Very limited Seepage	1.00	Somewhat limited Seepage Large stones content	0.25 0.18
173: Langrell-----	50	Very limited Seepage	1.00	Somewhat limited Seepage Large stones content	0.25 0.18
Snow-----	35	Somewhat limited Seepage	0.70	Very limited Piping	1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
174: Larabee-----	35	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.66	Somewhat limited Piping Thin layer	0.96 0.66
Getaway-----	30	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
Klickson-----	20	Somewhat limited Slope Seepage	0.97 0.04	Somewhat limited Large stones content	0.85
175: Larabee-----	35	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.66 0.21	Somewhat limited Piping Thin layer	0.96 0.66
Klickson-----	30	Somewhat limited Slope Seepage	0.21 0.04	Somewhat limited Large stones content	0.85
Volstead-----	20	Somewhat limited Seepage Slope Depth to bedrock	0.54 0.21 0.16	Somewhat limited Piping Thin layer	0.93 0.16
176: Larabee-----	35	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.66	Somewhat limited Piping Thin layer	0.96 0.66
Klickson-----	30	Somewhat limited Slope Seepage	0.97 0.04	Somewhat limited Large stones content	0.85
Volstead-----	20	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.54 0.16	Somewhat limited Piping Thin layer	0.93 0.16
177: Larabee-----	45	Somewhat limited Seepage Depth to bedrock	0.70 0.66	Somewhat limited Piping Thin layer	0.96 0.66
Melhorn-----	40	Somewhat limited Seepage	0.70	Very limited Piping	1.00
178: Larabee-----	45	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.66 0.21	Somewhat limited Piping Thin layer	0.96 0.66
Volstead-----	40	Somewhat limited Seepage Slope Depth to bedrock	0.54 0.21 0.16	Somewhat limited Piping Thin layer	0.93 0.16
179: Laufer-----	50	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content Seepage	1.00 0.96 0.12



Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
179: Thiessen-----	35	Somewhat limited Depth to bedrock	0.74	Somewhat limited Thin layer Large stones content	0.74 0.18
180: Laufer-----	50	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Seepage	1.00 0.96 0.12
Thiessen-----	35	Somewhat limited Depth to bedrock Slope	0.74 0.21	Somewhat limited Thin layer Large stones content	0.74 0.18
181: Laufer-----	45	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Seepage	1.00 0.96 0.12
Thiessen-----	40	Somewhat limited Slope Depth to bedrock	0.97 0.74	Somewhat limited Thin layer Large stones content	0.74 0.18
182: Laufer-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 0.96 0.12
Thiessen-----	30	Very limited Slope Depth to bedrock	1.00 0.74	Somewhat limited Thin layer Large stones content	0.74 0.18
Rock outcrop-----	15	Not rated		Not rated	
183: Lawyer, stony-----	30	Very limited Slope Depth to bedrock Seepage	1.00 0.29 0.04	Somewhat limited Thin layer Large stones content	0.29 0.01
Lawyer-----	25	Very limited Slope Depth to bedrock Seepage	1.00 0.29 0.04	Somewhat limited Thin layer Large stones content	0.29 0.01
Gwinly-----	25	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
184: Lickskillet-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.12

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
184: Dixiejett-----	25	Very limited Slope Depth to bedrock Seepage	1.00 0.33 0.04	Somewhat limited Seepage Thin layer	0.38 0.34
Rock outcrop-----	20	Not rated		Not rated	
185: Lickskillet-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.12
Doublecreek-----	25	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.01
Rockly-----	20	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
186: Lickskillet-----	30	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.12
Doublecreek-----	30	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping Seepage	1.00 0.01
Rockly-----	25	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
187: Limberjim-----	85	Somewhat limited Seepage Depth to bedrock	0.70 0.42	Somewhat limited Thin layer Large stones content	0.42 0.05
188: Limberjim-----	50	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.42	Somewhat limited Thin layer Large stones content	0.42 0.05
Anatone-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 1.00
189: Limberjim-----	60	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.42 0.21	Somewhat limited Thin layer Large stones content	0.42 0.05
Syrupcreek-----	25	Somewhat limited Depth to bedrock Seepage Slope	0.91 0.70 0.21	Very limited Piping Thin layer	1.00 0.91

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
190: Limberjim-----	70	Somewhat limited Slope Seepage Depth to bedrock	 0.97 0.70 0.42	Somewhat limited Thin layer Large stones content	 0.42 0.05
Syrupcreek-----	15	Somewhat limited Slope Depth to bedrock Seepage	 0.97 0.91 0.70	Very limited Piping Thin layer	 1.00 0.91
191: Limberjim-----	45	Somewhat limited Seepage Depth to bedrock	 0.70 0.42	Somewhat limited Thin layer Large stones content	 0.42 0.05
Tamara-----	40	Very limited Seepage	 1.00	Very limited Piping	 1.00
192: Linecreek-----	55	Very limited Seepage Slope	 1.00 1.00	Somewhat limited Large stones content Seepage	 0.83 0.38
Getaway-----	35	Very limited Slope Seepage Depth to bedrock	 1.00 0.70 0.16	Somewhat limited Large stones content Thin layer	 0.18 0.16
193: Lookingglass-----	85	Somewhat limited Seepage	 0.70	Somewhat limited Depth to saturated zone Piping	 0.95 0.46
194: Lookingglass-----	85	Somewhat limited Seepage Slope	 0.70 0.01	Somewhat limited Depth to saturated zone Piping	 0.95 0.46
195: Lookingglass, stony	85	Somewhat limited Seepage	 0.70	Somewhat limited Depth to saturated zone Piping	 0.95 0.46
196: Lookingglass, cobbly	60	Somewhat limited Seepage Slope	 0.70 0.21	Somewhat limited Depth to saturated zone Piping	 0.95 0.46
Lookingglass-----	25	Somewhat limited Seepage	 0.70	Somewhat limited Depth to saturated zone Piping	 0.95 0.46
197: Lookingglass-----	65	Somewhat limited Seepage	 0.70	Somewhat limited Depth to saturated zone Piping	 0.95 0.46
Sopher-----	20	Somewhat limited Depth to bedrock Slope	 0.29 0.21	Somewhat limited Thin layer Piping	 0.29 0.25

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
198: Lookingglass-----	65	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.95 0.46
Sopher-----	20	Somewhat limited Depth to bedrock Slope	0.29 0.21	Somewhat limited Thin layer Piping	0.29 0.25
199: Lostine-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.12
200: Mallory-----	35	Somewhat limited Depth to bedrock Slope	0.95 0.21	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25
Gwinly-----	25	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Lawyer-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.29 0.21 0.04	Somewhat limited Thin layer Large stones content	0.29 0.01
201: Mallory-----	35	Somewhat limited Slope Depth to bedrock	0.97 0.95	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25
Gwinly-----	25	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
Lawyer-----	25	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.29 0.04	Somewhat limited Thin layer Large stones content	0.29 0.01
202: Mallory-----	40	Very limited Slope Depth to bedrock	1.00 0.95	Somewhat limited Thin layer Large stones content Seepage	0.95 0.93 0.25
Lawyer-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.29 0.04	Somewhat limited Thin layer Large stones content	0.29 0.01
Rock outcrop-----	10	Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
203: Matheny-----	35	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.29	Somewhat limited Large stones content Seepage Thin layer	0.43  0.38 0.29
Linville-----	25	Very limited Slope Seepage	1.00 0.70	Very limited Piping	1.00
Laufer-----	25	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 0.96 0.12
204: Matterhorn-----	85	Very limited Seepage	1.00	Somewhat limited Large stones content Seepage	0.93 0.12
205: Minam-----	85	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.06
206: Minam-----	85	Somewhat limited Seepage Slope	0.70 0.01	Somewhat limited Seepage	0.06
207: Minam-----	85	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.06
208: Minam-----	85	Somewhat limited Seepage Slope	0.70 0.01	Somewhat limited Seepage	0.06
209: Minam-----	90	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.06
210: Minam-----	90	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.06
211: Minam-----	90	Somewhat limited Seepage Slope	0.70 0.01	Somewhat limited Seepage	0.06
212: Minam-----	30	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.06
Minam, gravelly----	20	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.06
Endoaquepts-----	40	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 1.00
213: Minam, gravelly----	30	Somewhat limited Seepage Slope	0.70 0.01	Somewhat limited Seepage	0.06

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
213: Minam, stony-----	25	Somewhat limited Seepage Slope	0.70 0.01	Somewhat limited Seepage	0.06
Endoaquepts-----	35	Somewhat limited Seepage Slope	0.70 0.01	Very limited Depth to saturated zone Piping	1.00 1.00
214: Mippon-----	90	Very limited Seepage	1.00	Somewhat limited Seepage Large stones content	0.25 0.03
215: Mountemily-----	45	Somewhat limited Seepage Slope	0.70 0.21	Not limited	
Troutmeadows-----	40	Somewhat limited Depth to bedrock Seepage Slope	0.85 0.70 0.21	Very limited Piping Thin layer	1.00 0.85
216: Mountemily-----	45	Somewhat limited Slope Seepage	0.97 0.70	Not limited	
Troutmeadows-----	40	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.85 0.70	Very limited Piping Thin layer	1.00 0.85
217: Mountemily-----	45	Very limited Slope Seepage	1.00 0.70	Not limited	
Troutmeadows-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.85 0.70	Very limited Piping Thin layer	1.00 0.85
218: Mountemily-----	35	Very limited Slope Seepage	1.00 0.70	Not limited	
Troutmeadows-----	25	Very limited Slope Depth to bedrock Seepage	1.00 0.85 0.70	Very limited Piping Thin layer	1.00 0.85
Anatone-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
219: Needhill-----	35	Very limited Seepage Slope Depth to bedrock	1.00 0.21 0.04	Very limited Piping Thin layer	1.00 0.04
Parsnip-----	25	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Piping	1.00 1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
219: Bocker-----	25	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
220: Needhill-----	45	Very limited Seepage Depth to bedrock	1.00 0.04	Very limited Piping Thin layer	1.00 0.04
Zumwalt-----	40	Somewhat limited Depth to bedrock	0.61	Not limited	
221: Olot-----	85	Somewhat limited Depth to bedrock Seepage	0.66 0.04	Somewhat limited Seepage	0.12
222: Olot-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.66 0.21 0.04	Somewhat limited Seepage	0.12
223: Olot-----	50	Somewhat limited Depth to bedrock Seepage	0.66 0.04	Somewhat limited Seepage	0.12
Anatone-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
224: Olot-----	50	Somewhat limited Depth to bedrock Slope Seepage	0.66 0.21 0.04	Somewhat limited Seepage	0.12
Anatone-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 1.00
225: Parsnip-----	85	Very limited Depth to bedrock	1.00	Very limited Thin layer Piping	1.00 1.00
226: Parsnip-----	55	Very limited Depth to bedrock	1.00	Very limited Thin layer Piping	1.00 1.00
Bocker-----	30	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
227: Phys-----	85	Very limited Seepage	1.00	Somewhat limited Large stones content Seepage	0.87 0.01

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
228: Phys-----	40	Very limited Seepage	1.00	Somewhat limited Large stones content	0.01
Doublecreek-----	30	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.01
Collegecreek-----	20	Very limited Seepage	1.00	Very limited Piping	1.00
229: Phys-----	35	Very limited Seepage Slope	1.00 0.21	Somewhat limited Large stones content	0.01
Doublecreek-----	30	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping Seepage	1.00 0.01
Collegecreek-----	25	Very limited Seepage Slope	1.00 0.21	Very limited Piping	1.00
230: Powwatka-----	85	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Very limited Piping Thin layer	1.00 0.98
231: Powwatka-----	85	Somewhat limited Depth to bedrock Seepage Slope	0.98 0.04 0.01	Very limited Piping Thin layer	1.00 0.98
232: Powwatka-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Very limited Piping Thin layer	1.00 0.98
233: Powwatka-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Very limited Piping Thin layer	1.00 0.98
234: Puzzlecreek-----	85	Somewhat limited Slope Seepage Depth to bedrock	0.88 0.70 0.52	Very limited Large stones content Thin layer Seepage	1.00 0.52 0.38
235: Ramo-----	85	Somewhat limited Seepage	0.04	Not limited	
236: Ramo-----	85	Somewhat limited Seepage Slope	0.04 0.01	Not limited	
237: Ramo-----	85	Somewhat limited Slope Seepage	0.21 0.04	Not limited	



Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
238: Ramo-----	50	Somewhat limited Seepage	0.04	Not limited	
Conley-----	35	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.49
239: Reavis-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.12
240: Redmount-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.38
241: Redmount-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.38
242: Redmount-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.38
243: Redmount-----	50	Very limited Seepage	1.00	Somewhat limited Seepage	0.38
Cheval-----	35	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.25
244: Riverwash-----	80	Not rated		Not rated	
245: Rock outcrop, limestone-----	85	Not rated		Not rated	
246: Rock outcrop-----	50	Not rated		Not rated	
Anatone-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Fivebit-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Seepage	1.00 0.44
247: Rock outcrop-----	35	Not rated		Not rated	
Anatone-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Imnaha-----	20	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
248: Rock outcrop-----	50	Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
248: Anatone-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
Imnaha-----	15	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
249: Rock outcrop-----	50	Not rated		Not rated	
Imnaha-----	20	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
Cherrycreek-----	20	Very limited Seepage Slope Depth to bedrock	1.00 1.00 0.04	Very limited Large stones content Seepage Thin layer	1.00 0.38 0.04
250: Rock outcrop-----	50	Not rated		Not rated	
Linecreek-----	20	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.83 0.38
Anatone-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 1.00
251: Rock outcrop-----	45	Not rated		Not rated	
Rockly-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
Dixiejett-----	20	Very limited Slope Depth to bedrock Seepage	1.00 0.33 0.04	Somewhat limited Seepage Thin layer	0.38 0.34
252: Rockly-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
Rock outcrop-----	30	Not rated		Not rated	
Copperfield-----	20	Very limited Slope Seepage	1.00 0.70	Somewhat limited Large stones content Seepage	0.23 0.12

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
253: Rockly-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
Rock outcrop-----	25	Not rated		Not rated	
Lickskillet-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.12
254: Rondowa-----	90	Very limited Seepage	1.00	Not limited	
255: Rondowa-----	90	Very limited Seepage Slope	1.00 0.01	Not limited	
256: Rondowa-----	90	Very limited Seepage	1.00	Somewhat limited Large stones content	0.10
257: Rondowa-----	90	Very limited Seepage Slope	1.00 0.21	Somewhat limited Large stones content	0.10
258: Rondowa-----	90	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content	0.10
259: Rondowa-----	90	Very limited Seepage Slope	1.00 0.21	Somewhat limited Large stones content	0.10
260: Rondowa-----	90	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content	0.10
261: Rondowa-----	90	Very limited Seepage	1.00	Somewhat limited Large stones content	0.06
262: Rondowa-----	90	Very limited Seepage Slope	1.00 0.21	Somewhat limited Large stones content	0.06
263: Rondowa-----	90	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content	0.06
264: Rondowa-----	90	Very limited Seepage Slope	1.00 0.21	Somewhat limited Large stones content	0.06

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
265: Rondowa-----	90	Very limited Seepage Slope	1.00 0.97	Somewhat limited Large stones content	0.06
266: Rubble land-----	70	Not rated		Not rated	
Rock outcrop-----	15	Not rated		Not rated	
267: Sag-----	85	Somewhat limited Seepage Slope	0.70 0.21	Somewhat limited Piping	0.99
268: Sag-----	85	Somewhat limited Slope Seepage	0.97 0.70	Somewhat limited Piping	0.99
269: Sag-----	85	Very limited Slope Seepage	1.00 0.70	Somewhat limited Piping	0.99
270: Schrier-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00
271: Schrier-----	55	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00
Almota-----	30	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.56 0.21	Very limited Piping Thin layer	1.00 0.56
272: Schrier-----	50	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping	1.00
Almota-----	25	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.56	Very limited Piping Thin layer	1.00 0.56
Rock outcrop-----	10	Not rated		Not rated	
273: Schuelke-----	55	Somewhat limited Depth to bedrock Seepage Slope	0.77 0.70 0.04	Somewhat limited Thin layer Large stones content	0.77 0.37
Schrier-----	15	Somewhat limited Seepage Slope	0.70 0.04	Very limited Piping	1.00
Rockly-----	15	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
274: Silverlake-----	85	Very limited Seepage Depth to cemented pan	1.00 0.37	Somewhat limited Piping Thin layer Seepage	0.68 0.37 0.10
275: Slicklog-----	85	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.03
276: Slicklog-----	50	Very limited Seepage Slope	1.00 0.97	Somewhat limited Seepage	0.03
Eastpine-----	35	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.56	Somewhat limited Thin layer Large stones content Seepage	0.56 0.13 0.03
277: Slicklog-----	55	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.03
Eastpine-----	20	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.56	Somewhat limited Thin layer Large stones content Seepage	0.56 0.13 0.03
Rock outcrop-----	10	Not rated		Not rated	
278: Slicklog-----	50	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.03
Wintercanyon-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer	1.00
Rock outcrop-----	10	Not rated		Not rated	
279: Snell-----	85	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
280: Snell-----	65	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Harlow-----	25	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
281: Snell-----	60	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00  0.98 0.06 0.03
Harlow-----	25	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
282: Snell-----	50	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00  0.98 0.06 0.03
Harlow-----	40	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
283: Snell-----	55	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00  0.98 0.06 0.03
Harlow-----	30	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
284: Snell-----	65	Somewhat limited Depth to bedrock Seepage	0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00  0.98 0.06 0.03
Harlow-----	25	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.06
285: Snell-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00  0.98 0.06 0.03
Harlow-----	25	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
Imnaha-----	25	Somewhat limited Depth to bedrock Seepage Slope	0.98 0.70 0.21	Somewhat limited Thin layer	0.98

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
286: Snell-----	35	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Harlow-----	25	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
Imnaha-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.97 0.70	Somewhat limited Thin layer	0.98
287: Snell-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Harlow-----	30	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
Rock outcrop-----	15	Not rated		Not rated	
288: Snell-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.04	Very limited Large stones content Thin layer Seepage Hard to pack	1.00 0.98 0.06 0.03
Imnaha-----	25	Very limited Slope Depth to bedrock Seepage	1.00 0.98 0.70	Somewhat limited Thin layer	0.98
Rock outcrop-----	25	Not rated		Not rated	
289: Snow-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00
290: Sopher-----	85	Somewhat limited Depth to bedrock Slope	0.29 0.21	Somewhat limited Thin layer Piping	0.29 0.25
291: Sopher-----	85	Somewhat limited Slope Depth to bedrock	0.97 0.29	Somewhat limited Thin layer Piping	0.29 0.25
292: Sopher-----	60	Somewhat limited Slope Depth to bedrock	0.97 0.29	Somewhat limited Thin layer Piping	0.29 0.25

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
292: Gwinly-----	25	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
293: Sopher-----	50	Somewhat limited Depth to bedrock Slope	0.29 0.21	Somewhat limited Thin layer Piping	0.29 0.25
Gwinly-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
294: Sopher-----	50	Somewhat limited Slope Depth to bedrock	0.97 0.29	Somewhat limited Thin layer Piping	0.29 0.25
Gwinly-----	35	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Piping	1.00 1.00 0.10
295: Sturgill-----	85	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.86
296: Sturgill-----	45	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.86
Eggleson-----	40	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage Large stones content	0.86 0.82 0.01
297: Sweitberg-----	85	Somewhat limited Depth to bedrock	0.69	Somewhat limited Thin layer Piping	0.70 0.61
298: Sweitberg-----	85	Somewhat limited Depth to bedrock Slope	0.69 0.01	Somewhat limited Thin layer Piping	0.70 0.61
299: Sweiting-----	85	Somewhat limited Depth to bedrock Seepage	0.81 0.04	Somewhat limited Thin layer	0.81
300: Sweiting-----	85	Somewhat limited Depth to bedrock Slope Seepage	0.81 0.21 0.04	Somewhat limited Thin layer	0.81



Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
301: Sweiting-----	50	Somewhat limited Depth to bedrock Seepage	0.81 0.04	Somewhat limited Thin layer	0.81
Harlow-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61
302: Sweiting-----	50	Somewhat limited Depth to bedrock Slope Seepage	0.81 0.21 0.04	Somewhat limited Thin layer	0.81
Harlow-----	35	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
303: Sweiting-----	50	Somewhat limited Depth to bedrock Slope Seepage	0.81 0.21 0.04	Somewhat limited Thin layer	0.81
Klicker-----	40	Somewhat limited Depth to bedrock Slope Seepage	0.98 0.21 0.04	Somewhat limited Thin layer Large stones content	0.98 0.72
304: Syrupcreek-----	85	Somewhat limited Depth to bedrock Seepage	0.91 0.70	Very limited Piping Thin layer	1.00 0.91
305: Syrupcreek-----	60	Somewhat limited Depth to bedrock Seepage	0.91 0.70	Very limited Piping Thin layer	1.00 0.91
Anatone-----	25	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 1.00
306: Syrupcreek-----	60	Somewhat limited Depth to bedrock Seepage	0.91 0.70	Very limited Piping Thin layer	1.00 0.91
Lowerbluff-----	25	Very limited Depth to bedrock	1.00	Very limited Thin layer Seepage	1.00 0.01
307: Syrupcreek-----	55	Somewhat limited Depth to bedrock Seepage Slope	0.91 0.70 0.21	Very limited Piping Thin layer	1.00 0.91
Tamara-----	30	Very limited Seepage Slope	1.00 0.21	Very limited Piping	1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
308: Syrupcreek-----	65	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.91 0.70	Very limited Piping Thin layer	1.00 0.91
Tamara-----	20	Very limited Seepage Slope	1.00 0.97	Very limited Piping	1.00
309: Tamara-----	65	Very limited Seepage	1.00	Very limited Piping	1.00
Sherod-----	20	Very limited Depth to bedrock	1.00	Very limited Depth to saturated zone Thin layer Piping	1.00 1.00 0.28
310: Tamara-----	45	Very limited Seepage	1.00	Very limited Piping	1.00
Syrupcreek-----	40	Somewhat limited Depth to bedrock Seepage	0.91 0.70	Very limited Piping Thin layer	1.00 0.91
311: Tamarackcanyon-----	40	Very limited Slope Depth to bedrock	1.00 0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Linecreek-----	25	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.83 0.38
Harlow-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
312: Tamarackcanyon-----	65	Somewhat limited Depth to bedrock	0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Lowerbluff-----	20	Very limited Depth to bedrock	1.00	Very limited Thin layer Seepage	1.00 0.01
313: Tamarackcanyon-----	40	Somewhat limited Depth to bedrock Slope	0.56 0.21	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Olot-----	25	Somewhat limited Depth to bedrock Slope Seepage	0.66 0.21 0.04	Somewhat limited Seepage	0.12

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
313: Harlow-----	20	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Large stones content	1.00 0.61
314: Tamarackcanyon-----	40	Somewhat limited Slope Depth to bedrock	0.97 0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Olot-----	25	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.66 0.04	Somewhat limited Seepage	0.12
Harlow-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
315: Tannahill-----	35	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.16	Very limited Large stones content Thin layer	1.00 0.16
Schrier-----	35	Very limited Slope Seepage	1.00 0.70	Very limited Piping	1.00
Rock outcrop-----	15	Not rated		Not rated	
316: Tannahill-----	35	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Very limited Large stones content Thin layer	1.00 0.16
Schuelke-----	30	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.77 0.70	Somewhat limited Thin layer Large stones content	0.77 0.37
Lickskillet-----	25	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content Seepage	1.00 1.00 0.12
317: Thiessen-----	85	Somewhat limited Depth to bedrock Slope	0.74 0.21	Somewhat limited Thin layer Large stones content	0.74 0.18
318: Threebuck-----	70	Somewhat limited Depth to bedrock	0.19	Somewhat limited Large stones content	0.35
Harlow-----	15	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
319: Threebuck-----	35	Very limited Slope Depth to bedrock	1.00 0.19	Somewhat limited Large stones content	0.35
Linecreek-----	30	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.83 0.38
Harlow-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.61
320: Threebuck-----	50	Somewhat limited Slope Depth to bedrock	0.21 0.19	Somewhat limited Large stones content	0.35
Tamarackcanyon-----	35	Somewhat limited Depth to bedrock Slope	0.56 0.21	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
321: Threebuck-----	50	Somewhat limited Slope Depth to bedrock	0.97 0.19	Somewhat limited Large stones content	0.35
Tamarackcanyon-----	35	Somewhat limited Slope Depth to bedrock	0.97 0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
322: Threebuck-----	35	Somewhat limited Slope Depth to bedrock	0.97 0.19	Somewhat limited Large stones content	0.35
Tamarackcanyon-----	30	Somewhat limited Slope Depth to bedrock	0.97 0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Harlow-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Thin layer Large stones content	1.00 0.61
323: Threebuck-----	35	Very limited Slope Depth to bedrock	1.00 0.19	Somewhat limited Large stones content	0.35
Tamarackcanyon-----	30	Very limited Slope Depth to bedrock	1.00 0.56	Somewhat limited Thin layer Large stones content Piping	0.56 0.37 0.07
Linecreek-----	20	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.83 0.38

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
324: Tippett-----	70	Somewhat limited Depth to bedrock	0.08	Not limited	
Harlow-----	20	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61
325: Tippett-----	70	Somewhat limited Depth to bedrock	0.08	Not limited	
Zumwalt-----	20	Somewhat limited Depth to bedrock	0.61	Not limited	
326: Tolo-----	85	Very limited Seepage	1.00	Somewhat limited Piping	0.99
327: Tolo-----	85	Very limited Seepage Slope	1.00 0.21	Somewhat limited Piping	0.99
328: Tolo, fan-----	85	Very limited Seepage	1.00	Very limited Piping	1.00
329: Tolo-----	50	Very limited Seepage Slope	1.00 0.21	Somewhat limited Piping	0.99
Getaway-----	35	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
330: Tolo-----	50	Very limited Seepage Slope	1.00 0.97	Somewhat limited Piping	0.99
Getaway-----	35	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
331: Tolo-----	50	Very limited Seepage Slope	1.00 0.21	Somewhat limited Piping	0.99
Getaway-----	35	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16
332: Tolo-----	50	Very limited Seepage Slope	1.00 0.97	Somewhat limited Piping	0.99
Getaway-----	35	Somewhat limited Slope Seepage Depth to bedrock	0.97 0.70 0.16	Somewhat limited Large stones content Thin layer	0.18 0.16

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
333: Tolo-----	50	Very limited Seepage	1.00	Somewhat limited Piping	0.99
Olot-----	35	Somewhat limited Depth to bedrock Seepage	0.66 0.04	Somewhat limited Seepage	0.12
334: Tolo-----	55	Very limited Seepage Slope	1.00 0.21	Somewhat limited Piping	0.99
Olot-----	30	Somewhat limited Depth to bedrock Slope Seepage	0.66 0.21 0.04	Somewhat limited Seepage	0.12
335: Topper-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00
336: Topper-----	85	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00
337: Topper-----	85	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00
338: Topper-----	85	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00
339: Troutmeadows-----	65	Somewhat limited Depth to bedrock Seepage	0.85 0.70	Very limited Piping Thin layer	1.00 0.85
Crawfish-----	20	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content Seepage	1.00 0.92 0.12
340: Tuckerdowns-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.31
341: Tuckerdowns-----	85	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.31
342: Tuckerdowns-----	85	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.31
343: Vandamine-----	60	Somewhat limited Slope Seepage	0.97 0.70	Not limited	

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
343: Bordengulch-----	25	Somewhat limited Slope Seepage Depth to bedrock	 0.97 0.70 0.69	Somewhat limited Thin layer Seepage	 0.70 0.25
344: Vandamine-----	50	Very limited Slope Seepage	 1.00 0.70	Not limited	
Bordengulch-----	25	Very limited Slope Seepage Depth to bedrock	 1.00 0.70 0.69	Somewhat limited Thin layer Seepage	 0.70 0.25
Rock outcrop-----	10	Not rated		Not rated	
345: Veazie-----	85	Very limited Seepage	 1.00	Not limited	
346: Voats-----	50	Very limited Seepage	 1.00	Somewhat limited Large stones content Seepage	 0.12 0.01
Veazie-----	35	Very limited Seepage	 1.00	Not limited	
347: Volstead-----	35	Somewhat limited Seepage Depth to bedrock	 0.54 0.16	Somewhat limited Piping Thin layer	 0.93 0.16
Quirk-----	30	Somewhat limited Depth to bedrock Seepage	 0.61 0.54	Somewhat limited Piping	 0.97
Bocker-----	20	Very limited Depth to bedrock	 1.00	Very limited Thin layer Large stones content	 1.00 1.00
348: Volstead-----	35	Somewhat limited Seepage Slope Depth to bedrock	 0.54 0.21 0.16	Somewhat limited Piping Thin layer	 0.93 0.16
Quirk-----	30	Somewhat limited Depth to bedrock Seepage Slope	 0.61 0.54 0.21	Somewhat limited Piping	 0.97
Bocker-----	20	Very limited Depth to bedrock Slope	 1.00 0.21	Very limited Thin layer Large stones content	 1.00 1.00
349: Wallowa-----	50	Somewhat limited Depth to bedrock Seepage	 0.88 0.70	Very limited Piping Thin layer	 1.00 0.88
Bocker-----	40	Very limited Depth to bedrock	 1.00	Very limited Thin layer Large stones content	 1.00 1.00

Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
350: Watama-----	85	Somewhat limited Depth to bedrock Seepage	0.96 0.04	Very limited Piping Thin layer	1.00 0.96
351: Watama-----	85	Somewhat limited Depth to bedrock Seepage Slope	0.96 0.04 0.01	Very limited Piping Thin layer	1.00 0.96
352: Watama-----	50	Somewhat limited Depth to bedrock Seepage	0.96 0.04	Very limited Piping Thin layer	1.00 0.96
Rockly-----	35	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content Seepage	1.00 0.68 0.25
353: Water-----	95	Not rated		Not rated	
354: Wilkins-----	85	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.03
355: Wilkins-----	55	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.03
Feaginranch-----	30	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.09
356: Wolot-----	85	Very limited Seepage	1.00	Very limited Piping	1.00
357: Zumwalt-----	65	Somewhat limited Depth to bedrock	0.61	Not limited	
Harlow-----	25	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61
358: Zumwalt-----	65	Somewhat limited Depth to bedrock Slope	0.61 0.01	Not limited	
Harlow-----	25	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Thin layer Large stones content	1.00 0.61



Table 15.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees	
		Rating class and limiting features	Value	Rating class and limiting features	Value
359: Zumwalt-----	65	Somewhat limited Depth to bedrock	0.61	Not limited	
Harlow-----	20	Very limited Depth to bedrock	1.00	Very limited Thin layer Large stones content	1.00 0.61

Table 16.--Engineering Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1: Akerite-----	0-12	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-90	15-25	NP-5
	12-30	Silt loam	CL-ML	A-4	0	0	100	100	90-100	80-90	20-30	5-10
	30-36	Silty clay loam, silt loam	CL	A-7	0	0	90-100	85-100	85-100	75-95	30-45	10-20
	36-60	Silty clay loam, clay	CL	A-7	0	0	90-100	85-100	85-100	75-95	40-50	15-25
2: Akerite-----	0-12	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-90	15-25	NP-5
	12-30	Silt loam	CL-ML	A-4	0	0	100	100	90-100	80-90	20-30	5-10
	30-36	Silty clay loam, silt loam	CL	A-7	0	0	90-100	85-100	85-100	75-95	30-45	10-20
	36-60	Silty clay loam, clay	CL	A-7	0	0	90-100	85-100	85-100	75-95	40-50	15-25
3: Albee-----	0-14	Silt loam	ML	A-4	0	0	90-100	90-100	85-100	65-90	25-35	NP-10
	14-34	Silt loam	ML	A-4	0	0	90-100	90-100	85-100	65-90	25-35	NP-10
	34-38	Gravelly silt loam, silt loam	ML	A-4	0	0-15	80-100	75-100	70-90	50-80	25-35	NP-10
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
5: Slicklog-----	0-6	Gravelly loam	GM, ML	A-4, A-5	0	0-15	60-80	60-75	50-70	35-60	35-45	NP-5
	6-16	Very gravelly loam, very cobbly loam	GM	A-2, A-4, A-5	0	15-30	40-70	40-65	35-55	25-50	35-45	NP-5
	16-22	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	50-70	40-65	25-60	10-50	35-45	NP-5
	22-49	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	40-65	35-60	20-55	15-45	35-45	NP-5
	49-60	Extremely stony sandy loam, very cobbly sandy loam, very stony loamy sand	SM, SP-SM	A-1, A-2	0-55	15-30	60-80	55-75	30-55	10-30	15-25	NP-5
Bluecanyon-----	0-5	Very gravelly silt loam	GC-GM, GM, ML	A-2, A-4	0-10	0-15	35-65	30-60	25-60	25-55	15-25	NP-10
	5-13	Very gravelly silt loam, very gravelly loam	GC-GM, GM	A-1, A-2, A-4	0	0-15	35-60	30-55	25-55	20-45	15-25	NP-10
	13-17	Extremely gravelly silt loam, extremely gravelly loam, very gravelly silt loam, very gravelly loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-15	20-50	15-45	15-40	10-35	15-25	NP-10
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
7: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker-----	0-2	Extremely cobbly silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobbly silt loam, extremely cobbly loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
8: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
12: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Cherrycreek----	0-9	Very cobbly silt loam	GM, ML	A-4	0-15	25-30	50-65	45-65	35-55	30-55	25-35	NP-5
	9-28	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GM, ML	A-1, A-4, A-2	0-15	15-45	25-65	20-60	15-55	15-55	25-35	NP-5
	28-43	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GC-GM, GC	A-1, A-2, A-4	10-25	15-45	30-65	20-55	20-50	15-45	20-30	5-10
	43-53	Extremely cobbly silt loam, extremely cobbly loam, very cobbly loam	GC-GM, GM	A-1, A-2, A-4	0-25	15-40	30-60	20-50	15-50	10-45	25-35	5-10
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
13: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
14: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
15: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
	Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---
16: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
17: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Olot-----	0-19	Silt loam	ML	A-4	0	0-10	100	100	90-100	70-90	30-40	NP-5
	19-22	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	55-90	50-85	45-85	30-80	35-40	10-15
	22-36	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	45-90	40-85	35-85	30-80	35-40	10-15
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
18: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
19: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Fivebit-----	0-4	Very gravelly sandy loam	GC, GC-GM, GM	A-2	0-10	0-20	35-90	30-85	20-60	10-35	20-30	NP-10
	4-9	Very gravelly sandy loam, extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2, A-4, A-6	0-10	15-30	30-55	25-50	15-50	10-40	25-35	5-15
	9-15	Extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2	0-15	15-45	25-40	20-30	10-30	5-20	25-35	5-15
	15-19	Extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2	0-15	15-45	25-40	20-30	10-30	5-20	25-35	5-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
21: Balm-----	0-3	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	85-95	50-65	20-30	NP-10
	3-15	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	100	100	85-95	50-65	20-30	NP-10
	15-27	Silt loam, fine sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4	0	0	85-100	75-100	55-95	40-80	20-30	NP-10
	27-61	Very gravelly sand, very gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1	0	0-15	35-65	25-50	10-30	0-15	0-10	NP
Catherine-----	0-22	Silt loam	ML	A-4	0	0	100	100	95-100	80-95	30-35	5-10
	22-41	Silt loam, silty clay loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	41-46	Silt loam, silty clay loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-95	30-40	5-15
	46-60	Stratified very gravelly loamy coarse sand to very gravelly silt loam	GM, ML, SM	A-2, A-4	0	0-25	50-90	45-85	40-80	25-60	20-30	NP-5
22: Bittercreek-----	0-11	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-25	5-10
	11-19	Very fine sandy loam, loam, silt loam	CL, CL-ML, SC-SM	A-4	0	0	90-100	85-100	60-100	35-85	20-25	5-10
	19-39	Loamy coarse sand, very cobbly loamy sand, extremely cobbly loamy coarse sand	SM, SC-SM, SP-SM	A-1, A-2, A-3	0	0-45	50-100	45-100	20-75	5-30	10-20	NP-5
	39-60	Extremely cobbly loamy coarse sand, very cobbly loamy sand, loamy coarse sand	SM, SC-SM, SP-SM	A-1, A-2, A-3	0	0-45	50-100	45-100	20-75	5-30	10-20	NP-5



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
24: Bocker-----	0-2	Extremely cobble silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobble silt loam, extremely cobble loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobble silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobble silty clay loam, very cobble silt loam, very cobble clay loam, very cobble loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
25: Bocker-----	0-2	Extremely cobble silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobble silt loam, extremely cobble loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
26: Clearline-----	0-4	Very gravelly silt loam	GM, ML	A-4	0	0-15	50-70	45-60	45-60	35-55	20-25	NP-5
	4-16	Very gravelly silt loam, extremely cobblely silt loam	GM	A-1, A-2	0-15	10-50	35-65	25-60	25-45	20-35	20-25	NP-5
	16-26	Very gravelly fine sandy loam, very gravelly silt loam, extremely cobblely loam	GM	A-1, A-2, A-4	0-15	15-50	30-55	20-50	20-50	10-45	20-25	NP-5
	26-36	Very gravelly fine sandy loam, very cobblely silt loam, extremely cobblely loam	GM	A-2, A-1, A-4	0-15	25-50	35-60	30-55	30-55	10-50	20-25	NP-5
	36-42	Very cobblely loam, extremely cobblely sandy loam, very cobblely sandy loam	GC-GM, SC-SM	A-1, A-2, A-4	0-15	25-50	35-70	30-60	30-60	10-45	20-25	5-10
	42-55	Very cobblely loam, extremely cobblely sandy loam, very cobblely sandy loam	GC-GM, SC-SM	A-1, A-4, A-2	0-15	25-50	35-70	30-60	30-60	10-45	20-25	5-10
	55-65	Unweathered bedrock			---	---	---	---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----												





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
28: Bridgewater-----	0-8	Extremely stony sandy loam	GC-GM, GM	A-1, A-2	30-45	25-45	40-60	30-50	25-45	15-25	20-30	NP-10
	8-30	Extremely cobble sandy loam, extremely cobble loam, extremely cobble coarse sandy loam	GC-GM, GM	A-1, A-2, A-4	0-15	45-55	30-50	25-45	20-40	10-40	20-30	NP-10
	30-60	Extremely cobble loamy sand, extremely cobble sand, extremely cobble coarse sand	GP, GP-GM	A-1	0-15	45-60	25-50	20-45	20-40	0-15	0-10	NP
29: Btree-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	7-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-22	Gravelly loam, very gravelly loam, cobble loam	GC-GM, SC, SC-SM, GC	A-2, A-4	0-10	0-25	45-80	45-75	35-65	25-45	20-30	5-10
	22-31	Very cobble clay, very gravelly clay loam, very gravelly clay, very cobble clay loam	GC, SC	A-2, A-7	0-15	0-40	35-75	35-65	30-60	15-50	40-55	20-30
	31-42	Very gravelly clay loam, extremely gravelly clay loam, very gravelly clay	CL, GC, SC	A-2, A-7	0-15	10-30	35-70	35-60	30-55	25-50	40-55	20-30
	42-52	Weathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
29: Flycreek-----	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	6-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-20	Clay loam, clay, gravelly clay loam	CH, CL	A-7	0	0-10	75-100	70-90	65-90	50-85	40-55	20-30
	20-31	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	31-35	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
30: Btree-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	7-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-22	Gravelly loam, very gravelly loam, cobbly loam	GC-GM, SC, SC-SM, GC	A-2, A-4	0-10	0-25	45-80	45-75	35-65	25-45	20-30	5-10
	22-31	Very cobbly clay, very gravelly clay loam, very gravelly clay, very cobbly clay loam	GC, SC	A-2, A-7	0-15	0-40	35-75	35-65	30-60	15-50	40-55	20-30
	31-42	Very gravelly clay loam, extremely gravelly clay loam, very gravelly clay	CL, GC, SC	A-2, A-7	0-15	10-30	35-70	35-60	30-55	25-50	40-55	20-30
	42-52	Weathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
30: Flycreek-----	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	6-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-20	Clay loam, clay, gravelly clay loam	CH, CL	A-7	0	0-10	75-100	70-90	65-90	50-85	40-55	20-30
	20-31	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	31-35	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
31: Btree-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	7-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-22	Gravelly loam, very gravelly loam, cobbly loam	GC-GM, SC, SC-SM, GC	A-2, A-4	0-10	0-25	45-80	45-75	35-65	25-45	20-30	5-10
	22-31	Very cobbly clay, very gravelly clay loam, very gravelly clay, very cobbly clay loam	GC, SC	A-2, A-7	0-15	0-40	35-75	35-65	30-60	15-50	40-55	20-30
	31-42	Very gravelly clay loam, extremely gravelly clay loam, very gravelly clay	CL, GC, SC	A-2, A-7	0-15	10-30	35-70	35-60	30-55	25-50	40-55	20-30
	42-52	Weathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
31: Flycreek-----	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	6-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-20	Clay loam, clay, gravelly clay loam	CH, CL	A-7	0	0-10	75-100	70-90	65-90	50-85	40-55	20-30
	20-31	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	31-35	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
32: Btree-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	7-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-22	Gravelly loam, very gravelly loam, cobbly loam	GC-GM, SC, SC-SM, GC	A-4, A-2	0-10	0-25	45-80	45-75	35-65	25-45	20-30	5-10
	22-31	Very cobbly clay, very gravelly clay loam, very gravelly clay, very cobbly clay loam	GC, SC	A-2, A-7	0-15	0-40	35-75	35-65	30-60	15-50	40-55	20-30
	31-42	Very gravelly clay loam, extremely gravelly clay loam, very gravelly clay	CL, GC, SC	A-2, A-7	0-15	10-30	35-70	35-60	30-55	25-50	40-55	20-30
	42-52	Weathered bedrock			---	---	---	---	---	---	---	---
Flycreek-----	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	6-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-20	Clay loam, clay, gravelly clay loam	CH, CL	A-7	0	0-10	75-100	70-90	65-90	50-85	40-55	20-30
	20-31	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	31-35	Clay loam, clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-10	70-100	65-90	65-90	50-85	40-55	20-30
	35-39	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
32: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
33: Btree-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	65-90	30-40	NP-5
	7-17	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	85-100	85-100	60-100	50-90	30-40	NP-5
	17-22	Gravelly loam, very gravelly loam, cobbly loam	GC-GM, SC, SC-SM, GC	A-2, A-4	0-10	0-25	45-80	45-75	35-65	25-45	20-30	5-10
	22-31	Very cobbly clay, very gravelly clay loam, very gravelly clay, very cobbly clay loam	GC, SC	A-2, A-7	0-15	0-40	35-75	35-65	30-60	15-50	40-55	20-30
	31-42	Very gravelly clay loam, extremely gravelly clay loam, very gravelly clay	CL, GC, SC	A-2, A-7	0-15	10-30	35-70	35-60	30-55	25-50	40-55	20-30
	42-52	Weathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
33: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
34: Bucketlake-----	0-4	Silt loam	ML	A-4	0-5	0-5	95-100	90-100	65-90	50-80	30-40	NP-5
	4-14	Silt loam, gravelly silt loam	ML	A-4	0-25	0-15	80-95	70-90	65-90	50-80	30-40	NP-5
	14-21	Cobbly coarse sandy loam, very stony silt loam, very stony loam, extremely stony sandy loam, very cobbly coarse sandy loam	GP-GM, SC-SM, SM	A-1, A-2	0-45	15-40	40-85	35-80	20-50	10-30	15-20	NP-5
	21-37	Extremely stony sandy loam, very stony sandy loam, very cobbly coarse sandy loam	GP-GM, SC-SM, SM, GM	A-1	0-45	15-45	30-70	25-65	15-45	10-25	15-20	NP-5
	37-62	Extremely stony sandy loam, very stony sandy loam, very cobbly coarse sandy loam	GP-GM, SC-SM, SM, GM	A-1	0-45	10-45	30-70	25-65	15-45	10-25	15-20	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
35: Bucketlake-----	0-4	Silt loam	ML	A-4	0-5	0-5	95-100	90-100	65-90	50-80	30-40	NP-5
	4-14	Silt loam, gravelly silt loam	ML	A-4	0-25	0-15	80-95	70-90	65-90	50-80	30-40	NP-5
	14-21	Cobbly coarse sandy loam, very stony silt loam, very stony loam, extremely stony sandy loam, very cobbly coarse sandy loam	GP-GM, SC-SM, SM	A-1, A-2	0-45	15-40	40-85	35-80	20-50	10-30	15-20	NP-5
	21-37	Extremely stony sandy loam, very stony sandy loam, very cobbly coarse sandy loam	GP-GM, SC-SM, SM, GM	A-1	0-45	15-45	30-70	25-65	15-45	10-25	15-20	NP-5
	37-62	Extremely stony sandy loam, very stony sandy loam, very cobbly coarse sandy loam	GP-GM, SC-SM, SM, GM	A-1	0-45	10-45	30-70	25-65	15-45	10-25	15-20	NP-5
36: Buford-----	0-16	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	16-36	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	36-46	Silt loam, loam	CL-ML	A-4	0	0-10	90-100	85-100	70-95	55-75	20-30	5-10
	46-50	Clay, silty clay, cobbly clay	CH, MH	A-7	0	0-25	80-100	70-100	65-100	55-95	50-60	20-30
	50-60	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
39: Bunchpoint-----	0-12	Silt loam	ML	A-4	0	0	90-100	85-100	75-100	60-90	25-35	NP-5
	12-24	Silt loam, loam, fine sandy loam	CL-ML	A-4	0	0-10	90-100	85-100	75-100	60-90	20-25	5-10
	24-32	Gravelly loam, gravelly silt loam, gravelly very fine sandy loam	CL-ML	A-4	0	0-15	60-80	55-75	50-70	40-60	20-25	5-10
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker-----	0-2	Extremely cobble silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobble silt loam, extremely cobble loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
40: Chard-----	0-8	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	80-90	50-70	15-20	NP-5
	8-18	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	90-100	80-90	50-60	15-20	NP-5
	18-30	Silt loam, loam, very fine sandy loam	ML	A-4	0	0	95-100	90-100	80-90	50-60	15-20	NP-5
	30-68	Sandy loam, loam, very fine sandy loam	SM	A-2, A-4	0	0	90-100	90-100	40-80	30-45	15-20	NP-5



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
41: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

[illegible]

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
42: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

[illegible]

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
43: Cherrycreek-----	0-9	Very cobbly silt loam	GM, ML	A-4	0-15	25-30	50-65	45-65	35-55	30-55	25-35	NP-5
	9-28	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GM, ML	A-1, A-4, A-2	0-15	15-45	25-65	20-60	15-55	15-55	25-35	NP-5
	28-43	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GC-GM, GC	A-1, A-2, A-4	10-25	15-45	30-65	20-55	20-50	15-45	20-30	5-10
	43-53	Extremely cobbly silt loam, extremely cobbly loam, very cobbly loam	GC-GM, GM	A-1, A-2, A-4	0-25	15-40	30-60	20-50	15-50	10-45	25-35	5-10
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
44: Cherrycreek-----	0-9	Very cobbly silt loam	GM, ML	A-4	0-15	25-30	50-65	45-65	35-55	30-55	25-35	NP-5
	9-28	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GM, ML	A-1, A-4, A-2	0-15	15-45	25-65	20-60	15-55	15-55	25-35	NP-5
	28-43	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GC-GM, GC	A-1, A-2, A-4	10-25	15-45	30-65	20-55	20-50	15-45	20-30	5-10
	43-53	Extremely cobbly silt loam, extremely cobbly loam, very cobbly loam	GC-GM, GM	A-1, A-2, A-4	0-25	15-40	30-60	20-50	15-50	10-45	25-35	5-10
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---
Limberjim-----	0-5	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	5-15	Silt loam, very fine sandy loam	ML	A-5	0	0	90-100	85-100	75-90	60-80	40-50	NP-5
	15-20	Silt loam, loam, gravelly silt loam	CL-ML, GC-GM	A-4	0-10	0-15	70-90	65-85	60-75	45-60	25-30	5-10
	20-41	Very gravelly silt loam, very gravelly loam, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay loam	GC, GC-GM	A-2, A-4, A-6	0-15	0-45	30-80	20-75	20-50	15-45	25-35	5-15
	41-51	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
45: Chesnimnus-----	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	85-100	75-100	60-90	25-35	5-10
	7-13	Clay loam, silty clay loam, gravelly clay loam	CL	A-6	0	0	65-100	60-100	55-100	50-80	30-40	10-15
	13-26	Clay loam, silty clay loam, gravelly clay loam	CL	A-6	0	0	65-100	60-100	55-100	50-80	30-40	10-15
	26-34	Clay loam, silty clay loam, gravelly clay loam	CL	A-6	0	0	65-100	60-100	55-100	50-80	30-40	10-15
	34-48	Loam, clay loam, gravelly loam	CL, GC, GM, ML	A-4, A-6	0	0	65-100	60-100	50-100	40-75	30-40	5-15
	48-60	Extremely gravelly loam, very gravelly loam, very gravelly sandy loam, very gravelly loamy sand	GC-GM, GM	A-1, A-2	0	0-25	35-60	25-55	25-40	20-35	15-25	NP-5
46: Chesnimnus-----	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	85-100	75-100	60-90	25-35	5-10
	7-13	Clay loam, silty clay loam, gravelly clay loam	CL	A-6	0	0	65-100	60-100	55-100	50-80	30-40	10-15
	13-26	Clay loam, silty clay loam, gravelly clay loam	CL	A-6	0	0	65-100	60-100	55-100	50-80	30-40	10-15
	26-34	Clay loam, silty clay loam, gravelly clay loam	CL	A-6	0	0	65-100	60-100	55-100	50-80	30-40	10-15
	34-48	Loam, clay loam, gravelly loam	CL, GC, GM, ML	A-4, A-6	0	0	65-100	60-100	50-100	40-75	30-40	5-15
	48-60	Extremely gravelly loam, very gravelly loam, very gravelly sandy loam, very gravelly loamy sand	GC-GM, GM	A-1, A-2	0	0-25	35-60	25-55	25-40	20-35	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
47: Cheval-----	0-15	Silt loam	ML	A-4	0	0	85-100	75-100	70-100	55-90	20-30	NP-5
	15-24	Loam, gravelly loam, gravelly silt loam	GM, ML, SM	A-4	0	0	70-100	60-100	55-95	40-75	20-30	NP-5
	24-31	Loam, gravelly loam, gravelly silt loam	GM, ML, SM	A-4	0	0	70-100	60-100	55-95	40-75	20-30	NP-5
	31-60	Very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0	0	30-55	25-50	10-40	5-15	0-15	NP
48: Cloverland-----	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
	9-33	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	33-45	Silty clay loam, silty clay, clay	CL, MH	A-6, A-7	0	0-15	90-100	90-100	80-95	75-90	35-55	15-25
	45-60	Silty clay loam, silty clay, clay	CL, MH	A-6, A-7	0	0-15	90-100	90-100	80-95	75-90	35-55	15-25
49: Cloverland-----	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
	9-33	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	10-20
	33-45	Silty clay loam, silty clay, clay	CL, MH	A-6, A-7	0	0-15	90-100	90-100	80-95	75-90	35-55	15-25
	45-60	Silty clay loam, silty clay, clay	CL, MH	A-6, A-7	0	0-15	90-100	90-100	80-95	75-90	35-55	15-25
50: Conley-----	0-14	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-15
	14-23	Silt loam, silty clay loam	ML	A-4	0	0	100	100	90-100	70-95	25-35	NP-10
	23-40	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-55	20-30
	40-60	Silty clay loam, gravelly silty clay loam	CL	A-6	0	0-15	60-100	55-100	55-100	50-95	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
51: Conley-----	0-14	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-15
	14-23	Silt loam, silty clay loam	ML	A-4	0	0	100	100	90-100	70-95	25-35	NP-10
	23-40	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-55	20-30
	40-60	Silty clay loam, gravelly silty clay loam	CL	A-6	0	0-15	60-100	55-100	55-100	50-95	30-40	10-15
52: Copperfield----	0-4	Very cobbly silt loam	CL, CL-ML, ML	A-4	0-15	15-40	65-75	60-70	60-65	55-60	25-35	5-10
	4-22	Very cobbly silt loam, very gravelly silt loam	GC, GC-GM, GM	A-4	0-15	15-40	50-75	50-75	40-70	30-65	25-35	5-10
	22-42	Very gravelly silty clay loam, very cobbly silty clay loam, very gravelly clay loam, very cobbly clay loam	GC, GM	A-6, A-7	0-15	25-55	50-75	50-70	45-70	40-65	35-45	10-20
	42-60	Extremely cobbly silty clay, extremely cobbly clay, extremely cobbly silty clay loam	CH, CL, GC	A-7	0-10	50-70	35-60	30-55	30-50	30-50	40-55	20-30

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
52: Thiessen-----	0-3	Very cobbly silt loam	GC-GM, GM	A-4	0-10	25-40	50-65	45-60	40-55	35-50	25-35	5-10
	3-6	Very cobbly clay loam, very gravelly clay loam, very gravelly silty clay loam	GC	A-2, A-6	0	15-45	50-65	45-60	35-50	30-45	35-40	20-25
	6-14	Very gravelly clay loam, extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	15-55	35-55	30-50	20-40	20-30	35-45	20-30
	14-23	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-75	30-70	20-40	20-30	35-45	20-30
	23-34	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-60	30-55	20-40	20-30	35-45	20-30
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
53: Copperfield-----	0-4	Very cobbly silt loam	CL, CL-ML, ML	A-4	0-15	15-40	65-75	60-70	60-65	55-60	25-35	5-10
	4-22	Very cobbly silt loam, very gravelly silt loam	GC, GC-GM, GM	A-4	0-15	15-40	50-75	50-75	40-70	30-65	25-35	5-10
	22-42	Very gravelly silty clay loam, very cobbly silty clay loam, very gravelly clay loam, very cobbly clay loam	GC, GM	A-6, A-7	0-15	25-55	50-75	50-70	45-70	40-65	35-45	10-20
	42-60	Extremely cobbly silty clay, extremely cobbly clay, extremely cobbly silty clay loam	CH, CL, GC	A-7	0-10	50-70	35-60	30-55	30-50	30-50	40-55	20-30

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
53: Thiessen-----	0-3	Very cobbly silt loam	GC-GM, GM	A-4	0-10	25-40	50-65	45-60	40-55	35-50	25-35	5-10
	3-6	Very cobbly clay loam, very gravelly clay loam, very gravelly silty clay loam	GC	A-2, A-6	0	15-45	50-65	45-60	35-50	30-45	35-40	20-25
	6-14	Very gravelly clay loam, extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	15-55	35-55	30-50	20-40	20-30	35-45	20-30
	14-23	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-75	30-70	20-40	20-30	35-45	20-30
	23-34	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-60	30-55	20-40	20-30	35-45	20-30
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
54: Cowsly-----	0-3	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	3-20	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	20-23	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	23-41	Clay, silty clay	CL	A-7	0	0	100	100	90-100	75-95	40-50	15-25
	41-50	Clay, cobbly clay, silty clay	CL	A-7	0	0-15	75-100	75-100	65-100	50-95	40-50	15-25
	50-60	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
60: Snell-----	0-4	Stony loam	CL-ML, ML, SC-SM, SM CL	A-4	10-25	10-15	80-100	75-100	60-95	40-75	25-35	5-10
	4-9	Stony clay loam, very gravelly clay loam	CL	A-6	10-40	10-25	70-95	55-90	55-80	50-75	30-40	10-15
	9-18	Very stony clay loam, cobbly clay, cobbly silty clay, very cobbly silty clay loam, very gravelly clay	CH, CL, GC, SC	A-7	10-55	10-40	70-90	60-85	50-80	45-75	40-55	15-35
	18-24	Extremely stony clay loam, extremely stony silty clay loam, extremely stony clay, very cobbly silty clay, very gravelly clay	GC	A-2, A-7	10-55	10-40	40-55	35-50	30-50	25-45	45-55	25-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
62: Doublecreek-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	15-20	NP-5
	4-16	Silt loam, loam	ML	A-4	0	0	95-100	90-100	80-90	60-80	15-20	NP-5
	16-22	Loam, cobbly loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	65-85	55-75	20-30	5-10
	22-40	Sandy loam, cobbly fine sandy loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	55-75	45-70	20-30	5-10
	40-61	Cobbly fine sandy loam, sandy loam, silt loam	CL-ML, SC-SM	A-4	0-10	0-15	70-100	65-100	45-70	40-65	20-30	5-10
Flybow-----	0-2	Extremely gravelly loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	20-30	15-25	15-25	10-20	15-25	NP-10
	2-8	Very gravelly loam, extremely gravelly loam	GC-GM, GM	A-1, A-2	0	0-30	40-50	30-45	25-45	20-35	15-25	NP-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
63: Doublecreek-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	15-20	NP-5
	4-16	Silt loam, loam	ML	A-4	0	0	95-100	90-100	80-90	60-80	15-20	NP-5
	16-22	Loam, cobbly loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	65-85	55-75	20-30	5-10
	22-40	Sandy loam, cobbly fine sandy loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	55-75	45-70	20-30	5-10
	40-61	Cobbly fine sandy loam, sandy loam, silt loam	CL-ML, SC-SM	A-4	0-10	0-15	70-100	65-100	45-70	40-65	20-30	5-10



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
63: Langrell-----	0-9	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-10	60-85	55-75	50-65	35-50	20-30	NP-10
	9-20	Gravelly loam, cobbly loam	CL-ML, GC-GM, GM, ML	A-4	0-5	0-30	60-85	55-75	50-70	35-60	20-30	NP-10
	20-32	Very cobbly loam, extremely cobbly loam, very gravelly loam, very cobbly sandy loam, very gravelly sandy loam	GC, GC-GM, GM	A-1, A-2	0-15	25-55	30-60	20-55	15-50	15-35	20-30	NP-10
	32-50	Very stony sandy loam, extremely cobbly sandy loam, extremely gravelly sandy loam, extremely gravelly loamy sand, extremely cobbly loamy sand	GM, GP-GM, GW-GM	A-1	0-25	40-55	25-55	15-45	10-30	5-15	20-30	NP-5
	50-60	Very stony sandy loam, extremely cobbly sandy loam, extremely gravelly sandy loam, extremely gravelly coarse sandy loam, extremely cobbly loamy sand	GM, GP-GM, GW-GM	A-1	0-25	40-55	25-55	15-45	10-30	5-15	20-30	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
64: Doublecreek-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	15-20	NP-5
	4-16	Silt loam, loam	ML	A-4	0	0	95-100	90-100	80-90	60-80	15-20	NP-5
	16-22	Loam, cobbly loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	65-85	55-75	20-30	5-10
	22-40	Sandy loam, cobbly fine sandy loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	55-75	45-70	20-30	5-10
	40-61	Cobbly fine sandy loam, sandy loam, silt loam	CL-ML, SC-SM	A-4	0-10	0-15	70-100	65-100	45-70	40-65	20-30	5-10
Phys-----	0-10	Silt loam	ML	A-4	0	0-5	90-100	90-100	80-100	65-90	25-35	NP-10
	10-16	Clay loam, cobbly loam, cobbly clay loam, loam	ML	A-4	0-5	15-25	70-90	65-85	55-75	50-70	35-40	NP-10
	16-23	Very cobbly clay loam, very gravelly clay loam	GM, ML	A-2, A-6	0-15	15-50	45-85	40-85	40-85	30-70	35-40	10-15
	23-60	Very cobbly loam, extremely cobbly sandy clay loam	GM, SM	A-4, A-2	0-30	30-65	35-85	30-85	30-80	25-65	20-30	NP-5
65: Downards-----	0-3	Cobbly loam	CL-ML, ML, SC-SM	A-4	0	15-30	75-95	70-90	60-85	40-70	25-35	5-10
	3-12	Gravelly loam, gravelly clay loam, very cobbly loam, cobbly loam	CL-ML, ML, SC-SM	A-4	0	15-30	65-95	60-90	50-90	35-70	25-35	5-10
	12-20	Very cobbly clay loam, very cobbly loam, very gravelly clay loam	GC	A-2, A-6	0	15-40	45-60	40-55	35-55	25-45	30-40	10-15
	20-61	Very cobbly clay loam, very cobbly loam, extremely cobbly clay loam	GC	A-2, A-6	0-25	40-55	35-65	30-60	25-50	15-40	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
65: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
66: Downards-----	0-3	Cobbly loam	CL-ML, ML, SC-SM	A-4	0	15-30	75-95	70-90	60-85	40-70	25-35	5-10
	3-12	Gravelly loam, gravelly clay loam, very cobbly loam, cobbly loam	CL-ML, ML, SC-SM	A-4	0	15-30	65-95	60-90	50-90	35-70	25-35	5-10
	12-20	Very cobbly clay loam, very cobbly loam, very gravelly clay loam	GC	A-2, A-6	0	15-40	45-60	40-55	35-55	25-45	30-40	10-15
	20-61	Very cobbly clay loam, very cobbly loam, extremely cobbly clay loam	GC	A-2, A-6	0-25	40-55	35-65	30-60	25-50	15-40	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
66: Emily-----	0-5	Cobbly silt loam	ML	A-4	0	15-30	75-95	70-90	65-90	50-80	25-35	NP-10
	5-14	Very cobbly loam, very cobbly silty clay loam, very cobbly clay loam, very gravelly clay loam	GC, SC, CL	A-6, A-2	0	25-40	55-80	50-70	40-70	30-60	30-40	10-15
	14-33	Very cobbly loam, very cobbly silty clay loam, very cobbly clay loam, very gravelly clay loam	GC, SC, CL	A-6, A-2	0	25-40	50-80	45-70	40-70	30-60	30-40	10-15
	33-60	Very cobbly loam, very gravelly loam, very cobbly clay loam	GM, SM	A-1, A-2, A-4	0-10	30-50	30-65	25-60	20-60	15-45	25-35	NP-10
	60-66	Very cobbly loam, very gravelly loam, very cobbly clay loam	GM, SM	A-1, A-2, A-4	0-10	30-50	30-65	25-60	20-60	15-45	25-35	NP-10
Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
67: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
68: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	SC, CL, GC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
69: Downeygulch----	0-3	Gravelly silt loam	GM, ML	A-4	0	0	65-80	60-75	55-75	45-65	25-35	NP-5
	3-13	Gravelly silt loam, silt loam, loam	CL-ML, GC-GM	A-4	0	0-15	65-95	55-90	50-85	45-75	20-30	5-10
	13-24	Gravelly silt loam, silt loam, loam	CL-ML, GC-GM	A-4	0	0-15	65-95	55-90	50-85	45-75	20-30	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Lowerbluff-----	0-6	Silt loam	ML	A-4	0	0-10	80-100	75-100	45-65	40-60	25-40	NP-5
	6-15	Gravelly fine sandy loam, gravelly silt loam, silt loam	ML, SM	A-4	0	0-15	70-100	65-100	45-85	35-70	25-40	NP-5
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
70: Downeygulch-----	0-3	Gravelly silt loam	GM, ML	A-4	0	0	65-80	60-75	55-75	45-65	25-35	NP-5
	3-13	Gravelly silt loam, silt loam, loam	CL-ML, GC-GM	A-4	0	0-15	65-95	55-90	50-85	45-75	20-30	5-10
	13-24	Gravelly silt loam, silt loam, loam	CL-ML, GC-GM	A-4	0	0-15	65-95	55-90	50-85	45-75	20-30	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Thirstygulch----	0-10	Very stony loam	ML, SM	A-4	25-40	15-25	60-85	55-80	50-70	35-60	25-35	NP-5
	10-19	Extremely cobble fine sandy loam, extremely cobble loam, very cobble loam, extremely cobble silt loam	CL-ML, GC-GM	A-2, A-4	10-25	30-45	30-70	20-65	20-65	15-55	20-30	5-10
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
71: Eggleston-----	0-3	Gravelly loam	SM, GC-GM, GM, SC-SM	A-4	0	0-5	60-80	55-75	50-65	40-50	20-25	NP-5
	3-10	Very gravelly sandy loam	GC-GM, GM, GP-GM	A-1	0	0-25	35-55	30-50	20-35	10-20	15-20	NP-5
	10-17	Extremely gravelly loamy sand, extremely gravelly sand	GP, GP-GM	A-1	0-15	30-45	20-40	15-35	10-20	0-5	0-10	NP
	17-30	Extremely gravelly loamy sand, extremely gravelly sand	GP, GP-GM	A-1	0-15	30-45	20-40	15-35	10-20	0-5	0-10	NP
	30-60	Extremely gravelly loamy sand, extremely gravelly sand	GP, GP-GM	A-1	0-15	30-45	20-40	15-35	10-20	0-5	0-10	NP

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
72: Emily-----	0-5	Cobbly silt loam	ML	A-4	0	15-30	75-95	70-90	65-90	50-80	25-35	NP-10
	5-14	Very cobbly loam, very cobbly silty clay loam, very cobbly clay loam, very gravelly clay loam	GC, SC, CL	A-6, A-2	0	25-40	55-80	50-70	40-70	30-60	30-40	10-15
	14-33	Very cobbly loam, very cobbly silty clay loam, very cobbly clay loam, very gravelly clay loam	GC, SC, CL	A-6, A-2	0	25-40	50-80	45-70	40-70	30-60	30-40	10-15
	33-60	Very cobbly loam, very gravelly loam, very cobbly clay loam	GM, SM	A-1, A-2, A-4	0-10	30-50	30-65	25-60	20-60	15-45	25-35	NP-10
Wolot-----	0-21	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-5
	21-48	Silt loam, silty clay loam	ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	48-60	Silt loam, silty clay loam	ML	A-6	0	0	95-100	90-100	80-100	60-95	35-40	10-15



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
74: Ferguson-----	0-7	Very fine sandy loam	ML	A-4, A-5	0	0	100	90-100	80-95	50-65	40-50	NP-5
	7-24	Very fine sandy loam, silt loam	ML	A-5, A-4	0	0-10	85-95	80-90	65-90	50-60	40-50	NP-5
	24-38	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	38-45	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	45-60	Very gravelly loamy coarse sand, very gravelly coarse sand, extremely gravelly coarse sand	GM, GC-GM, GP-GM	A-1	0-25	15-30	30-50	25-45	15-35	5-15	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
75: Ferguson-----	0-7	Very fine sandy loam	ML	A-4, A-5	0	0	100	90-100	80-95	50-65	40-50	NP-5
	7-24	Very fine sandy loam, silt loam	ML	A-5, A-4	0	0-10	85-95	80-90	65-90	50-60	40-50	NP-5
	24-38	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	38-45	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	45-60	Very gravelly loamy coarse sand, very gravelly coarse sand, extremely gravelly coarse sand	GM, GC-GM, GP-GM	A-1	0-25	15-30	30-50	25-45	15-35	5-15	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
76: Ferguson-----	0-7	Very fine sandy loam	ML	A-4, A-5	0	0	100	90-100	80-95	50-65	40-50	NP-5
	7-24	Very fine sandy loam, silt loam	ML	A-5, A-4	0	0-10	85-95	80-90	65-90	50-60	40-50	NP-5
	24-38	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	38-45	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	45-60	Very gravelly loamy coarse sand, very gravelly coarse sand, extremely gravelly coarse sand	GM, GC-GM, GP-GM	A-1	0-25	15-30	30-50	25-45	15-35	5-15	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
77: Ferguson-----	0-7	Very fine sandy loam	ML	A-4, A-5	0	0	100	90-100	80-95	50-65	40-50	NP-5
	7-24	Very fine sandy loam, silt loam	ML	A-5, A-4	0	0-10	85-95	80-90	65-90	50-60	40-50	NP-5
	24-38	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	38-45	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	45-60	Very gravelly loamy coarse sand, very gravelly coarse sand, extremely gravelly coarse sand	GM, GC-GM, GP-GM	A-1	0-25	15-30	30-50	25-45	15-35	5-15	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
78: Ferguson-----	0-7	Very fine sandy loam	ML	A-4, A-5	0	0	100	90-100	80-95	50-65	40-50	NP-5
	7-24	Very fine sandy loam, silt loam	ML	A-5, A-4	0	0-10	85-95	80-90	65-90	50-60	40-50	NP-5
	24-38	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	38-45	Very stony sandy loam, very gravelly sandy loam, very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2, A-4	0-45	15-30	60-90	55-85	40-70	20-40	20-30	5-10
	45-60	Very gravelly loamy coarse sand, very gravelly coarse sand, extremely gravelly coarse sand	GM, GC-GM, GP-GM	A-1	0-25	15-30	30-50	25-45	15-35	5-15	15-25	NP-5
79: Flybow-----	0-2	Extremely gravelly loam	GC-GM, GM, GP-GM	A-1, A-2	0	0-30	20-30	15-25	15-25	10-20	15-25	NP-10
	2-8	Very gravelly loam, extremely gravelly loam	GC-GM, GM	A-1, A-2	0	0-30	40-50	30-45	25-45	20-35	15-25	NP-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
82: Freels-----	0-5	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	60-85	25-35	NP-5
	5-34	Silt loam, loam, fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-95	35-85	20-30	NP-5
	34-51	Silt loam, loam, fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-95	35-90	20-30	NP-5
	51-60	Silt loam, sandy loam, very gravelly sand, gravelly loam	GM, ML, SM, SP-SM	A-1, A-2, A-4	0	0	35-100	25-100	20-95	5-85	10-20	NP-5
83: Geisercreek----	0-5	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	70-90	25-40	NP-5
	5-14	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	70-90	25-40	NP-5
	14-19	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	70-90	25-40	NP-5
	19-23	Silt loam, loam, gravelly silt loam	CL-ML	A-4	0-10	0-10	80-100	75-100	70-100	60-90	25-30	5-10
	23-29	Gravelly clay loam, silty clay, silty clay loam, clay, cobbly silty clay loam	CL	A-6, A-7	0-10	0-15	70-100	65-100	60-100	60-95	40-45	15-20
	29-35	Cobbly clay, gravelly clay loam, silty clay, silty clay loam, clay, cobbly silty clay loam	CL	A-6, A-7	0-10	0-15	70-100	65-100	60-100	60-95	40-45	15-20
	35-60	Cobbly silty clay loam, silty clay loam, cobbly clay loam	CL	A-6	0-10	0-25	65-100	60-100	55-100	55-90	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
84: Gelsinger-----	0-10	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	NP-5
	10-14	Silty clay loam	CL, ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	14-21	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-55	20-30
	21-36	Silty clay loam, clay loam, clay	CL	A-7	0	0-15	90-100	80-100	70-90	55-85	40-50	20-25
	36-45	Loam, clay loam	CL	A-6	0	0-10	95-100	95-100	80-100	55-80	30-40	10-15
	45-51	Loam, clay loam	CL	A-6	0	0-10	95-100	95-100	80-100	55-80	30-40	10-15
	51-60	Clay loam, gravelly clay loam, loam	CL, SC	A-6	0	0-10	75-100	65-100	60-100	45-80	30-40	10-15
85: Gelsinger-----	0-10	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	NP-5
	10-14	Silty clay loam	CL, ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	14-21	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-55	20-30
	21-36	Silty clay loam, clay loam, clay	CL	A-7	0	0-15	90-100	80-100	70-90	55-85	40-50	20-25
	36-45	Loam, clay loam	CL	A-6	0	0-10	95-100	95-100	80-100	55-80	30-40	10-15
	45-51	Loam, clay loam	CL	A-6	0	0-10	95-100	95-100	80-100	55-80	30-40	10-15
	51-60	Clay loam, gravelly clay loam, loam	CL, SC	A-6	0	0-10	75-100	65-100	60-100	45-80	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
86: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
90: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
92: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
92: Linecreek-----	0-9	Extremely cobbly loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobbly loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobbly fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobbly fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobbly sandy loam	GC-GM, GC, CL-ML	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
92: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
93: Getaway-----	0-6	Stony silt loam	CL	A-6	5-15	10-30	70-95	65-90	60-80	50-65	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
94: Kettenbach-----	0-8	Very cobbly loam	CL, CL-ML, GC, GC-GM	A-4, A-6	0-10	30-45	50-80	45-75	40-70	25-55	25-35	5-15
	8-16	Very cobbly loam, very cobbly silt loam, cobbly loam, cobbly clay loam	CL, GC	A-6	0	15-45	60-95	55-90	55-90	40-80	30-40	10-20
	16-24	Very cobbly clay loam, very cobbly silty clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6, A-7	0	30-55	30-75	25-70	20-70	20-65	30-45	10-20
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
95: Gwin-----	0-5	Very gravelly silt loam	CL, GC, GC-GM	A-2, A-4	0-15	15-25	45-70	40-60	35-55	30-50	25-35	5-15
	5-9	Very cobbly silt loam, very cobbly silty clay loam, extremely cobbly clay loam	GC	A-6, A-2	0-15	40-55	30-60	25-50	20-40	15-40	30-40	10-15
	9-13	Very cobbly silt loam, very cobbly silty clay loam, extremely cobbly clay loam	GC	A-6, A-2	0-15	40-55	30-60	25-50	20-40	15-40	30-40	10-15
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
96: Klickson-----	0-6	Very gravelly loam	CL-ML, GC, GC-GM	A-4	0	0-15	55-70	50-60	45-60	40-55	25-30	5-10
	6-18	Very cobbly loam, cobbly loam	CL, CL-ML, SC, SC-SM, GC	A-4, A-6	0	25-40	55-85	50-70	45-70	35-60	25-35	5-15
	18-38	Very cobbly clay loam, very cobbly loam	CL, GC	A-2, A-6	0-15	30-50	50-80	45-65	35-60	25-55	30-40	10-15
	38-66	Very cobbly clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	10-15	30-50	50-80	40-60	35-60	25-55	30-40	10-15
Kettenbach-----	0-8	Very cobbly loam	CL, CL-ML, GC, GC-GM	A-4, A-6	0-10	30-45	50-80	45-75	40-70	25-55	25-35	5-15
	8-16	Very cobbly loam, very cobbly silt loam, cobbly loam, cobbly clay loam	CL, GC	A-6	0	15-45	60-95	55-90	55-90	40-80	30-40	10-20
	16-24	Very cobbly clay loam, very cobbly silty clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6, A-7	0	30-55	30-75	25-70	20-70	20-65	30-45	10-20
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
97: Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
98: Mallory-----	0-3	Very stony silt loam	CL, CL-ML, GC-GM	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	3-8	Very stony silt loam	CL-ML, GC-GM, CL	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	8-11	Very cobbly clay loam	CL, GC, GM	A-6, A-7	0-10	25-30	50-75	45-70	40-65	35-55	35-45	10-20
	11-18	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	18-26	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
99: Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
99: Mallory-----	0-3	Very stony silt loam	CL, CL-ML, GC-GM	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	3-8	Very stony silt loam	CL-ML, GC-GM, CL	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	8-11	Very cobbly clay loam	CL, GC, GM	A-6, A-7	0-10	25-30	50-75	45-70	40-65	35-55	35-45	10-20
	11-18	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	18-26	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
100: Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
100: Mallory-----	0-3	Very stony silt loam	CL, CL-ML, GC-GM	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	3-8	Very stony silt loam	CL-ML, GC-GM, CL	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	8-11	Very cobbly clay loam	CL, GC, GM	A-6, A-7	0-10	25-30	50-75	45-70	40-65	35-55	35-45	10-20
	11-18	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	18-26	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Kettenbach-----	0-8	Very cobbly loam	CL, CL-ML, GC, GC-GM	A-4, A-6	0-10	30-45	50-80	45-75	40-70	25-55	25-35	5-15
	8-16	Very cobbly loam, very cobbly silt loam, cobbly loam, cobbly clay loam	CL, GC	A-6	0	15-45	60-95	55-90	55-90	40-80	30-40	10-20
	16-24	Very cobbly clay loam, very cobbly silty clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6, A-7	0	30-55	30-75	25-70	20-70	20-65	30-45	10-20
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
101: Kettenbach-----	0-8	Very cobbly loam	CL, CL-ML, GC, GC-GM	A-4, A-6	0-10	30-45	50-80	45-75	40-70	25-55	25-35	5-15
	8-16	Very cobbly loam, very cobbly silt loam, cobbly loam, cobbly clay loam	CL, GC	A-6	0	15-45	60-95	55-90	55-90	40-80	30-40	10-20
	16-24	Very cobbly clay loam, very cobbly silty clay loam, extremely cobbly clay loam	CL, GC	A-2, A-6, A-7	0	30-55	30-75	25-70	20-70	20-65	30-45	10-20
	24-28	Unweathered bedrock			---	---	---	---	---	---	---	---
102: Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
103: Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Mallory-----	0-3	Very stony silt loam	CL, CL-ML, GC-GM	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	3-8	Very stony silt loam	CL-ML, GC-GM, CL	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	8-11	Very cobbly clay loam	CL, GC, GM	A-6, A-7	0-10	25-30	50-75	45-70	40-65	35-55	35-45	10-20
	11-18	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	18-26	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
106: Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
107: Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
107: Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
108: Hapludolls, frigid-----	0-11	Silt loam	SC-SM, CL-ML	A-4	0-5	0-5	95-100	90-100	85-100	60-90	20-30	5-10
	11-24	Loam, very gravelly sandy clay loam, silt loam, very gravelly sandy loam	CL, CL-ML, GC, SC	A-2, A-4, A-6	0-10	0-25	55-100	50-100	40-95	20-75	25-35	5-15
	24-43	Loam, very gravelly sandy loam, extremely cobbly sandy clay loam, extremely cobbly loamy sand	CL, GC, GM, ML, SC	A-1, A-2, A- 4, A-6	0-30	0-30	40-100	35-95	25-90	10-70	15-40	NP-15
	43-61	Loam, very gravelly sandy loam, extremely cobbly sandy clay loam, extremely cobbly loamy sand	CL, GC, GM, ML, SM	A-1, A-2, A- 4, A-6	0-30	0-30	40-100	35-95	25-90	10-70	15-40	NP-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
108: Endoaquolls, frigid-----	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-100	60-90	20-30	5-10
	10-18	Very gravelly sandy loam, cobble silt loam, clay loam	CL-ML, GC-GM, GM, ML, CL	A-2, A-4	0-15	0-30	45-100	40-100	25-100	15-90	15-30	NP-10
	18-61	Extremely stony sandy loam, extremely cobble sandy loam, extremely cobble clay loam, extremely gravelly loamy sand	GC-GM, GM, GP-GM, GC	A-1, A-2	0-30	0-40	30-45	20-40	15-40	5-30	15-40	NP-15
Endoaquents, frigid-----	0-8	Gravelly loam	GM, ML	A-4	0	0-30	65-90	25-80	25-75	20-70	15-25	NP-5
	8-15	Very gravelly loam, very cobble loam, very gravelly loamy sand, extremely gravelly sandy loam, very gravelly silt loam	GM, GP-GM, ML	A-1, A-2, A-4	0-25	0-45	20-80	15-75	15-70	10-60	10-30	NP-10
	15-61	Extremely cobble loamy sand, gravelly sandy loam, extremely cobble silt loam, very gravelly loam	GM, GP-GM	A-1, A-2	0-30	0-50	15-65	10-60	10-50	5-30	10-30	NP-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
109: Harl-----	0-2	Very gravelly silt loam	GM	A-2, A-5	0-10	10-15	40-60	35-55	30-50	25-45	40-50	NP-5
	2-13	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	13-24	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	24-29	Extremely gravelly silt loam, extremely cobbly loam, very gravelly sandy loam	GC, GC-GM, GP-GC	A-2, A-4	10-25	25-40	30-60	20-50	15-50	10-45	20-30	5-10
	29-48	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC-GM, GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10
	48-61	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC, GC-GM, GP-GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
109: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
110: Harl-----	0-2	Very gravelly silt loam	GM	A-2, A-5	0-10	10-15	40-60	35-55	30-50	25-45	40-50	NP-5
	2-13	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	13-24	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	24-29	Extremely gravelly silt loam, extremely cobbly loam, very gravelly sandy loam	GC, GC-GM, GP-GC	A-4, A-2	10-25	25-40	30-60	20-50	15-50	10-45	20-30	5-10
	29-48	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC-GM, GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10
	48-61	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC, GC-GM, GP-GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
110: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
111: Harl-----	0-2	Very gravelly silt loam	GM	A-2, A-5	0-10	10-15	40-60	35-55	30-50	25-45	40-50	NP-5
	2-13	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	13-24	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	24-29	Extremely gravelly silt loam, extremely cobbly loam, very gravelly sandy loam	GC, GC-GM, GP-GC	A-2, A-4	10-25	25-40	30-60	20-50	15-50	10-45	20-30	5-10
	29-48	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC-GM, GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10
	48-61	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC, GC-GM, GP-GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
111: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
112: Harl-----	0-2	Very gravelly silt loam	GM	A-2, A-5	0-10	10-15	40-60	35-55	30-50	25-45	40-50	NP-5
	2-13	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	13-24	Very gravelly silt loam, very gravelly fine sandy loam, very cobbly fine sandy loam	GM	A-1, A-2, A-5	0-15	15-30	40-65	35-60	25-60	20-50	40-50	NP-5
	24-29	Extremely gravelly silt loam, extremely cobbly loam, very gravelly sandy loam	GC, GC-GM, GP-GC	A-2, A-4	10-25	25-40	30-60	20-50	15-50	10-45	20-30	5-10
	29-48	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC-GM, GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10
	48-61	Extremely gravelly loam, extremely cobbly loam, extremely stony sandy loam, extremely cobbly silt loam	GC, GC-GM, GP-GC	A-2	10-25	25-40	25-45	20-40	15-35	10-30	20-30	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
112: Limberjim-----	0-5	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	5-15	Silt loam, very fine sandy loam	ML	A-5	0	0	90-100	85-100	75-90	60-80	40-50	NP-5
	15-20	Silt loam, loam, gravelly silt loam	CL-ML, GC-GM	A-4	0-10	0-15	70-90	65-85	60-75	45-60	25-30	5-10
	20-41	Very gravelly silt loam, very gravelly loam, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay loam	GC, GC-GM	A-2, A-4, A-6	0-15	0-45	30-80	20-75	20-50	15-45	25-35	5-15
	41-51	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
113: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker-----	0-2	Extremely cobbly silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobbly silt loam, extremely cobbly loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
115: Bocker-----	0-2	Extremely cobble silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobble silt loam, extremely cobble loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
116: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobble clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobble clay, very cobble clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker-----	0-2	Extremely cobble silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobble silt loam, extremely cobble loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
118: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
119: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
120: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
121: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
122: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
123: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
123: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
124: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
124: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
125: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
125: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
126: Harlow-----	0-4	Very stony clay loam	GC	A-2, A-6, A-7	15-25	10-25	45-70	40-65	30-50	25-40	35-45	15-20
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
127: Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
127: Linecreek-----	0-9	Extremely cobble loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobbly loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	GM, ML	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	GM, ML	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobble sandy loam	CL-ML, GC-GM, GC	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
128: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
129: Threebuck-----	0-4	Loam	ML	A-4, A-5	0	0-10	90-100	85-100	70-95	50-75	35-45	NP-5
	4-14	Cobbly loam, gravelly silt loam, gravelly loam	ML	A-4, A-5	0	0-30	80-100	70-100	60-100	40-90	35-45	NP-5
	14-25	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	25-36	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	36-47	Gravelly clay, very gravelly clay, very cobbly silty clay loam	CH, CL, GC	A-2, A-7	0-15	15-50	50-75	40-65	35-65	30-60	40-55	15-30
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
130: Hershal-----	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-90	30-40	5-10
	10-24	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	70-95	50-70	20-30	NP-5
	24-60	Very gravelly loamy sand, gravelly sand, very gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	0-25	40-80	30-65	20-50	5-20	0-15	NP
131: Hershal-----	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-90	30-40	5-10
	10-24	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	70-95	50-70	20-30	NP-5
	24-60	Very gravelly loamy sand, gravelly sand, very gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	0-25	40-80	30-65	20-50	5-20	0-15	NP



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
131: Voats-----	0-15	Fine sandy loam	ML, SM	A-4	0	0	90-100	80-100	60-85	35-55	15-20	NP-5
	15-60	Stratified very cobbly sand to very gravelly loamy sand	SP-SM, GP-GM	A-1	0-15	0-45	40-55	35-50	15-35	5-10	0-15	NP
132: Hershal-----	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	75-100	60-90	30-40	5-10
	10-24	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	70-95	50-70	20-30	NP-5
	24-60	Very gravelly loamy sand, gravelly sand, very gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	0-25	40-80	30-65	20-50	5-20	0-15	NP
Voats-----	0-15	Fine sandy loam	ML, SM	A-4	0	0	90-100	80-100	60-85	35-55	15-20	NP-5
	15-60	Stratified very cobbly sand to very gravelly loamy sand	GP-GM, SP-SM	A-1	0-15	0-45	40-55	35-50	15-35	5-10	0-15	NP
Veazie-----	0-19	Loam	CL, CL-ML, ML	A-4	0	0	90-100	80-100	70-95	50-75	20-30	NP-10
	19-28	Loam, silt loam, gravelly loam	ML	A-4	0	0-10	85-100	75-100	70-95	50-75	25-35	NP-10
	28-34	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	10-30	35-65	25-55	15-45	5-20	0-15	NP
	34-60	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	10-30	35-65	25-55	15-45	5-20	0-15	NP

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
133: Howmeadows-----	0-7	Silty clay loam	CL	A-6	0	0	100	95-100	90-100	80-95	35-45	10-20
	7-10	Silty clay loam, clay	CL	A-7	0	0	90-100	85-100	75-100	65-95	40-50	15-25
	10-21	Silty clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-45	65-95	60-90	50-90	50-85	40-55	20-30
	21-26	Silty clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-45	65-95	60-90	50-90	50-85	40-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Wilkins-----	0-19	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	19-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	25-52	Silty clay, clay	CH, CL	A-7	0	0	90-100	85-100	80-100	75-95	45-65	25-45
	52-70	Loam, silty clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	60-100	60-100	60-95	25-40	5-15
	70-76	Loam, silty clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0	70-100	60-100	60-100	60-95	25-40	5-15
134: Hurwal-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	12-18	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	18-56	Silty clay loam, silt loam	ML	A-5, A-7	0	0	100	95-100	85-100	55-75	40-50	5-15
	56-60	Silt loam, loam, gravelly silt loam	ML	A-4	0	0-15	85-100	75-100	70-100	55-90	30-40	5-10
135: Hurwal-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	12-18	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	18-56	Silty clay loam, silt loam	ML	A-5, A-7	0	0	100	95-100	85-100	55-75	40-50	5-15
	56-60	Silt loam, loam, gravelly silt loam	ML	A-4	0	0-15	85-100	75-100	70-100	55-90	30-40	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
136: Hurwal, deep----	0-12	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	12-18	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	18-56	Silty clay loam, silt loam	ML	A-5, A-7	0	0	100	95-100	85-100	55-75	40-50	5-15
	56-60	Silt loam, loam, gravelly silt loam	ML	A-4	0	0-15	85-100	75-100	70-100	55-90	30-40	5-10
	58-68	Unweathered bedrock			---	---	---	---	---	---	---	---
137: Hurwal, deep----	0-12	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	12-18	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	18-56	Silty clay loam, silt loam	ML	A-5, A-7	0	0	100	95-100	85-100	55-75	40-50	5-15
	56-60	Silt loam, loam, gravelly silt loam	ML	A-4	0	0-15	85-100	75-100	70-100	55-90	30-40	5-10
	58-68	Unweathered bedrock			---	---	---	---	---	---	---	---
138: Hurwal-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	12-18	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	18-56	Silty clay loam, silt loam	ML	A-5, A-7	0	0	100	95-100	85-100	55-75	40-50	5-15
	56-60	Silt loam, loam, gravelly silt loam	ML	A-4	0	0-15	85-100	75-100	70-100	55-90	30-40	5-10
139: Hurwal-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	12-18	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	18-56	Silty clay loam, silt loam	ML	A-5, A-7	0	0	100	95-100	85-100	55-75	40-50	5-15
	56-60	Silt loam, loam, gravelly silt loam	ML	A-4	0	0-15	85-100	75-100	70-100	55-90	30-40	5-10
140: Hurwal-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	12-18	Silt loam	ML	A-4	0	0	100	95-100	85-100	55-75	30-40	5-10
	18-56	Silty clay loam, silt loam	ML	A-5, A-7	0	0	100	95-100	85-100	55-75	40-50	5-15
	56-60	Silt loam, loam, gravelly silt loam	ML	A-4	0	0-15	85-100	75-100	70-100	55-90	30-40	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
141: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
142: Imhaha, moist---	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
143: Clearline-----	0-4	Very gravelly silt loam	GM, ML	A-4	0	0-15	50-70	45-60	45-60	35-55	20-25	NP-5
	4-16	Very gravelly silt loam, extremely cobblely silt loam	GM	A-1, A-2	0-15	10-50	35-65	25-60	25-45	20-35	20-25	NP-5
	16-26	Very gravelly fine sandy loam, very gravelly silt loam, extremely cobblely loam	GM	A-1, A-2, A-4	0-15	15-50	30-55	20-50	20-50	10-45	20-25	NP-5
	26-36	Very gravelly fine sandy loam, very cobblely silt loam, extremely cobblely loam	GM	A-2, A-1, A-4	0-15	25-50	35-60	30-55	30-55	10-50	20-25	NP-5
	36-42	Very cobblely loam, extremely cobblely sandy loam, very cobblely sandy loam	GC-GM, SC-SM	A-1, A-2, A-4	0-15	25-50	35-70	30-60	30-60	10-45	20-25	5-10
	42-55	Very cobblely loam, extremely cobblely sandy loam, very cobblely sandy loam	GC-GM, SC-SM	A-1, A-4, A-2	0-15	25-50	35-70	30-60	30-60	10-45	20-25	5-10
	55-65	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
144: Cherrycreek-----	0-9	Very cobbly silt loam	GM, ML	A-4	0-15	25-30	50-65	45-65	35-55	30-55	25-35	NP-5
	9-28	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GM, ML	A-1, A-4, A-2	0-15	15-45	25-65	20-60	15-55	15-55	25-35	NP-5
	28-43	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GC-GM, GC	A-1, A-2, A-4	10-25	15-45	30-65	20-55	20-50	15-45	20-30	5-10
	43-53	Extremely cobbly silt loam, extremely cobbly loam, very cobbly loam	GC-GM, GM	A-1, A-2, A-4	0-25	15-40	30-60	20-50	15-50	10-45	25-35	5-10
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
145: Clearline-----	0-4	Very gravelly silt loam	GM, ML	A-4	0	0-15	50-70	45-60	45-60	35-55	20-25	NP-5
	4-16	Very gravelly silt loam, extremely cobble silt loam	GM	A-1, A-2	0-15	10-50	35-65	25-60	25-45	20-35	20-25	NP-5
	16-26	Very gravelly fine sandy loam, very gravelly silt loam, extremely cobble loam	GM	A-1, A-2, A-4	0-15	15-50	30-55	20-50	20-50	10-45	20-25	NP-5
	26-36	Very gravelly fine sandy loam, very cobble silt loam, extremely cobble loam	GM	A-2, A-1, A-4	0-15	25-50	35-60	30-55	30-55	10-50	20-25	NP-5
	36-42	Very cobble loam, extremely cobble sandy loam, very cobble sandy loam	GC-GM, SC-SM	A-1, A-2, A-4	0-15	25-50	35-70	30-60	30-60	10-45	20-25	5-10
	42-55	Very cobble loam, extremely cobble sandy loam, very cobble sandy loam	GC-GM, SC-SM	A-1, A-4, A-2	0-15	25-50	35-70	30-60	30-60	10-45	20-25	5-10
	55-65	Unweathered bedrock			---	---	---	---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----												



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
146: Cherrycreek-----	0-9	Very cobbly silt loam	GM, ML	A-4	0-15	25-30	50-65	45-65	35-55	30-55	25-35	NP-5
	9-28	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GM, ML	A-1, A-4, A-2	0-15	15-45	25-65	20-60	15-55	15-55	25-35	NP-5
	28-43	Extremely cobbly silt loam, extremely cobbly loam, very gravelly silt loam	GC-GM, GC	A-1, A-2, A-4	10-25	15-45	30-65	20-55	20-50	15-45	20-30	5-10
	43-53	Extremely cobbly silt loam, extremely cobbly loam, very cobbly loam	GC-GM, GM	A-1, A-2, A-4	0-25	15-40	30-60	20-50	15-50	10-45	25-35	5-10
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---
147: Josset-----	0-11	Loam	ML	A-4	0	0	95-100	90-100	75-95	55-75	25-30	NP-5
	11-22	Fine sandy loam, loam, gravelly fine sandy loam	ML, SM	A-4	0	0	80-100	70-100	50-90	35-70	25-30	NP-5
	22-60	Very gravelly sand, very gravelly loamy sand, extremely gravelly sand	GP, GP-GM, SP, SP-SM	A-1	0	0-15	35-55	25-50	10-35	0-10	0-15	NP



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
149: Kahler-----	0-5	Silt loam	ML	A-4	0-5	0-10	90-100	85-100	75-95	60-85	25-35	NP-10
	5-27	Silt loam, loam	ML	A-4, A-6, A-7	0-5	0-10	85-95	80-95	75-95	60-85	30-45	5-15
	27-40	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20
	40-44	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20
	44-61	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
150: Kahler-----	0-5	Silt loam	ML	A-4	0-5	0-10	90-100	85-100	75-95	60-85	25-35	NP-10
	5-27	Silt loam, loam	ML	A-4, A-6, A-7	0-5	0-10	85-95	80-95	75-95	60-85	30-45	5-15
	27-40	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20
	40-44	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20
	44-61	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
150: Linecreek-----	0-9	Extremely cobbly loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobbly loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobbly fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobbly fine sandy loam	GM, ML	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobbly sandy loam	GC, GC-GM, CL-ML	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
150: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
151: Kahler-----	0-5	Silt loam	ML	A-4	0-5	0-10	90-100	85-100	75-95	60-85	25-35	NP-10
	5-27	Silt loam, loam	ML	A-4, A-6, A-7	0-5	0-10	85-95	80-95	75-95	60-85	30-45	5-15
	27-40	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20
	40-44	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20
	44-61	Loam, gravelly silty clay loam, gravelly clay loam, gravelly loam	GM, ML, SM	A-4, A-6, A-7	0-5	0-10	60-85	55-80	45-75	35-70	30-50	5-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
151: Linecreek-----	0-9	Extremely cobble loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobbly loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	GM, ML	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobble sandy loam	GC, GC-GM, CL-ML	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
152: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
154: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
156: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
158: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
160: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Fivebit-----	0-4	Very gravelly sandy loam	GC, GC-GM, GM	A-2	0-10	0-20	35-90	30-85	20-60	10-35	20-30	NP-10
	4-9	Very gravelly sandy loam, extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2, A-4, A-6	0-10	15-30	30-55	25-50	15-50	10-40	25-35	5-15
	9-15	Extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2	0-15	15-45	25-40	20-30	10-30	5-20	25-35	5-15
	15-19	Extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2	0-15	15-45	25-40	20-30	10-30	5-20	25-35	5-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
161: Fivebit-----	0-4	Very gravelly sandy loam	GC, GC-GM, GM	A-2	0-10	0-20	35-90	30-85	20-60	10-35	20-30	NP-10
	4-9	Very gravelly sandy loam, extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2, A-4, A-6	0-10	15-30	30-55	25-50	15-50	10-40	25-35	5-15
	9-15	Extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2	0-15	15-45	25-40	20-30	10-30	5-20	25-35	5-15
	15-19	Extremely gravelly sandy loam, extremely gravelly loam	GC, GC-GM	A-2	0-15	15-45	25-40	20-30	10-30	5-20	25-35	5-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
163: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Kamela-----	0-8	Gravelly loam	ML	A-5	0-5	0-15	65-85	55-75	50-75	50-70	40-50	NP-5
	8-22	Very cobbly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-4	0-25	10-45	45-70	40-70	35-60	35-55	25-35	NP-10
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
164: Klicker-----	0-3	Silt loam	ML	A-4	0	0-5	90-95	85-90	70-85	65-80	20-30	NP-5
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Olot-----	0-19	Silt loam	ML	A-4	0	0-10	100	100	90-100	70-90	30-40	NP-5
	19-22	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	55-90	50-85	45-85	30-80	35-40	10-15
	22-36	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	45-90	40-85	35-85	30-80	35-40	10-15
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
165: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
166: Klicker-----	0-3	Gravelly silt loam	ML	A-4	0	0-10	70-95	65-90	60-85	60-80	20-30	NP-5
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
166: Thirstygulch----	0-10	Very stony loam	ML, SM	A-4	25-40	15-25	60-85	55-80	50-70	35-60	25-35	NP-5
	10-19	Extremely cobbly fine sandy loam, extremely cobbly loam, very cobbly loam, extremely cobbly silt loam	CL-ML, GC-GM	A-2, A-4	10-25	30-45	30-70	20-65	20-65	15-55	20-30	5-10
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
167: Klicker-----	0-3	Stony silt loam	CL, CL-ML	A-4, A-6	5-15	0-15	85-95	80-90	55-85	50-80	25-35	5-15
	3-10	Very cobbly silt loam, cobbly silt loam, very gravelly silt loam, gravelly silt loam	CL, GC	A-6	0-15	10-40	65-90	60-85	40-60	40-60	25-35	10-15
	10-18	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-55	50-85	40-80	35-80	30-60	30-40	10-20
	18-24	Extremely cobbly clay loam, very cobbly silty clay loam, extremely cobbly silty clay loam, very stony clay loam	CL, GC, SC	A-2, A-6	0-30	40-65	50-85	40-80	35-80	30-60	30-40	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
169: Klickson-----	0-6	Very gravelly loam	CL-ML, GC, GC-GM	A-4	0	0-15	55-70	50-60	45-60	40-55	25-30	5-10
	6-18	Very cobbly loam, cobbly loam	CL, CL-ML, SC, SC-SM, GC	A-4, A-6	0	25-40	55-85	50-70	45-70	35-60	25-35	5-15
	18-38	Very cobbly clay loam, very cobbly loam	CL, GC	A-2, A-6	0-15	30-50	50-80	45-65	35-60	25-55	30-40	10-15
	38-66	Very cobbly clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	10-15	30-50	50-80	40-60	35-60	25-55	30-40	10-15
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Larabee-----	0-12	Silt loam	CL-ML	A-4	0	0	90-100	85-95	80-95	70-85	25-35	5-10
	12-20	Gravelly silt loam, silt loam	CL	A-6	0	0-10	80-100	75-95	70-90	55-80	25-35	10-15
	20-36	Very cobbly loam, extremely gravelly silt loam, very cobbly clay loam	CL, GC	A-2, A-6	0	30-50	30-70	25-60	20-60	15-55	30-40	10-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
170: Klickson-----	0-6	Very gravelly loam	CL-ML, GC, GC-GM	A-4	0	0-15	55-70	50-60	45-60	40-55	25-30	5-10
	6-18	Very cobbly loam, cobbly loam	CL, CL-ML, SC, SC-SM, GC	A-4, A-6	0	25-40	55-85	50-70	45-70	35-60	25-35	5-15
	18-38	Very cobbly clay loam, very cobbly loam	CL, GC	A-2, A-6	0-15	30-50	50-80	45-65	35-60	25-55	30-40	10-15
	38-66	Very cobbly clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	10-15	30-50	50-80	40-60	35-60	25-55	30-40	10-15
Larabee-----	0-12	Silt loam	CL-ML	A-4	0	0	90-100	85-95	80-95	70-85	25-35	5-10
	12-20	Gravelly silt loam, silt loam	CL	A-6	0	0-10	80-100	75-95	70-90	55-80	25-35	10-15
	20-36	Very cobbly loam, extremely gravelly silt loam, very cobbly clay loam	CL, GC	A-2, A-6	0	30-50	30-70	25-60	20-60	15-55	30-40	10-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
171: Klickson-----	0-6	Very gravelly loam	CL-ML, GC, GC-GM	A-4	0	0-15	55-70	50-60	45-60	40-55	25-30	5-10
	6-18	Very cobbly loam, cobbly loam	CL, CL-ML, SC, SC-SM, GC	A-4, A-6	0	25-40	55-85	50-70	45-70	35-60	25-35	5-15
	18-38	Very cobbly clay loam, very cobbly loam	CL, GC	A-2, A-6	0-15	30-50	50-80	45-65	35-60	25-55	30-40	10-15
	38-66	Very cobbly clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	10-15	30-50	50-80	40-60	35-60	25-55	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
171: Larabee-----	0-12	Silt loam	CL-ML	A-4	0	0	90-100	85-95	80-95	70-85	25-35	5-10
	12-20	Gravelly silt loam, silt loam	CL	A-6	0	0-10	80-100	75-95	70-90	55-80	25-35	10-15
	20-36	Very cobbly loam, extremely gravelly silt loam, very cobbly clay loam	CL, GC	A-2, A-6	0	30-50	30-70	25-60	20-60	15-55	30-40	10-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Volstead-----	0-9	Silt loam	ML	A-4	0	0	95-100	80-100	80-100	70-90	15-20	NP-5
	9-13	Silt loam, loam	ML	A-4	0	0	90-100	80-100	80-100	70-90	15-20	NP-5
	13-23	Silt loam, clay loam, gravelly silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	23-38	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	38-48	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
173: Langrell-----	0-9	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-10	60-85	55-75	50-65	35-50	20-30	NP-10
	9-20	Gravelly loam, cobbly loam	CL-ML, GC-GM, GM, ML	A-4	0-5	0-30	60-85	55-75	50-70	35-60	20-30	NP-10
	20-32	Very cobbly loam, extremely cobbly loam, very gravelly loam, very cobbly sandy loam, very gravelly sandy loam	GC, GC-GM, GM	A-1, A-2	0-15	25-55	30-60	20-55	15-50	15-35	20-30	NP-10
	32-50	Very stony sandy loam, extremely cobbly sandy loam, extremely gravelly sandy loam, extremely gravelly loamy sand, extremely cobbly loamy sand	GM, GP-GM, GW-GM	A-1	0-25	40-55	25-55	15-45	10-30	5-15	20-30	NP-5
	50-60	Very stony sandy loam, extremely cobbly sandy loam, extremely gravelly sandy loam, extremely gravelly coarse sandy loam, extremely cobbly loamy sand	GM, GP-GM, GW-GM	A-1	0-25	40-55	25-55	15-45	10-30	5-15	20-30	NP-5
Snow-----	0-18	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	30-40	5-10
	18-36	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	30-40	5-10
	36-60	Silt loam	ML	A-4	0	0	90-100	85-100	75-100	60-90	30-40	5-10



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
174: Klickson-----	0-6	Very gravelly loam	CL-ML, GC, GC-GM	A-4	0	0-15	55-70	50-60	45-60	40-55	25-30	5-10
	6-18	Very cobbly loam, cobbly loam	CL, CL-ML, SC, SC-SM, GC	A-4, A-6	0	25-40	55-85	50-70	45-70	35-60	25-35	5-15
	18-38	Very cobbly clay loam, very cobbly loam	CL, GC	A-2, A-6	0-15	30-50	50-80	45-65	35-60	25-55	30-40	10-15
	38-66	Very cobbly clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	10-15	30-50	50-80	40-60	35-60	25-55	30-40	10-15
175: Larabee-----	0-12	Silt loam	CL-ML	A-4	0	0	90-100	85-95	80-95	70-85	25-35	5-10
	12-20	Gravelly silt loam, silt loam	CL	A-6	0	0-10	80-100	75-95	70-90	55-80	25-35	10-15
	20-36	Very cobbly loam, extremely gravelly silt loam, very cobbly clay loam	CL, GC	A-2, A-6	0	30-50	30-70	25-60	20-60	15-55	30-40	10-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Klickson-----	0-6	Very gravelly loam	CL-ML, GC, GC-GM	A-4	0	0-15	55-70	50-60	45-60	40-55	25-30	5-10
	6-18	Very cobbly loam, cobbly loam	CL, CL-ML, SC, SC-SM, GC	A-4, A-6	0	25-40	55-85	50-70	45-70	35-60	25-35	5-15
	18-38	Very cobbly clay loam, very cobbly loam	CL, GC	A-2, A-6	0-15	30-50	50-80	45-65	35-60	25-55	30-40	10-15
	38-66	Very cobbly clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	10-15	30-50	50-80	40-60	35-60	25-55	30-40	10-15



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
175: Volstead-----	0-9	Silt loam	ML	A-4	0	0	95-100	80-100	80-100	70-90	15-20	NP-5
	9-13	Silt loam, loam	ML	A-4	0	0	90-100	80-100	80-100	70-90	15-20	NP-5
	13-23	Silt loam, clay loam, gravelly silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	23-38	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	38-48	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
176: Larabee-----	0-12	Silt loam	CL-ML	A-4	0	0	90-100	85-95	80-95	70-85	25-35	5-10
	12-20	Gravelly silt loam, silt loam	CL	A-6	0	0-10	80-100	75-95	70-90	55-80	25-35	10-15
	20-36	Very cobbly loam, extremely gravelly silt loam, very cobbly clay loam	CL, GC	A-2, A-6	0	30-50	30-70	25-60	20-60	15-55	30-40	10-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Klickson-----	0-6	Very gravelly loam	CL-ML, GC, GC-GM	A-4	0	0-15	55-70	50-60	45-60	40-55	25-30	5-10
	6-18	Very cobbly loam, cobbly loam	CL, CL-ML, SC, SC-SM, GC	A-4, A-6	0	25-40	55-85	50-70	45-70	35-60	25-35	5-15
	18-38	Very cobbly clay loam, very cobbly loam	CL, GC	A-2, A-6	0-15	30-50	50-80	45-65	35-60	25-55	30-40	10-15
	38-66	Very cobbly clay loam, very cobbly loam	CL, GC, SC	A-2, A-6	10-15	30-50	50-80	40-60	35-60	25-55	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
176: Volstead-----	0-9	Silt loam	ML	A-4	0	0	95-100	80-100	80-100	70-90	15-20	NP-5
	9-13	Silt loam, loam	ML	A-4	0	0	90-100	80-100	80-100	70-90	15-20	NP-5
	13-23	Silt loam, clay loam, gravelly silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	23-38	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	38-48	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
177: Larabee-----	0-12	Silt loam	CL-ML	A-4	0	0	90-100	85-95	80-95	70-85	25-35	5-10
	12-20	Gravelly silt loam, silt loam	CL	A-6	0	0-10	80-100	75-95	70-90	55-80	25-35	10-15
	20-36	Very cobbly loam, extremely gravelly silt loam, very cobbly clay loam	CL, GC	A-2, A-6	0	30-50	30-70	25-60	20-60	15-55	30-40	10-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
177: Melhorn-----	0-3	Silt loam	ML	A-4	0	0	85-100	75-100	70-100	65-90	20-30	NP-5
	3-20	Loam, silt loam, gravelly loam	ML	A-4	0	0	80-95	70-90	65-90	55-80	20-30	NP-5
	20-38	Loam, gravelly loam, cobbly loam, silt loam	CL-ML, CL	A-4	0	0-25	80-95	75-90	65-90	55-80	25-35	5-10
	38-48	Gravelly loam, cobbly silt loam, loam, silt loam	CL, CL-ML, GC	A-4, A-6	0	0-25	65-95	60-90	60-80	40-65	25-40	5-15
	48-61	Gravelly clay loam, gravelly loam, loam, silt loam, gravelly silty clay loam, cobbly silt loam	GC-GM, CL, GC, CL-ML	A-4, A-6	0	0-25	65-90	60-85	50-75	40-65	25-39	5-15
178: Larabee-----	0-12	Silt loam	CL-ML	A-4	0	0	90-100	85-95	80-95	70-85	25-35	5-10
	12-20	Gravelly silt loam, silt loam	CL	A-6	0	0-10	80-100	75-95	70-90	55-80	25-35	10-15
	20-36	Very cobbly loam, extremely gravelly silt loam, very cobbly clay loam	CL, GC	A-2, A-6	0	30-50	30-70	25-60	20-60	15-55	30-40	10-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
178: Volstead-----	0-9	Silt loam	ML	A-4	0	0	95-100	80-100	80-100	70-90	15-20	NP-5
	9-13	Silt loam, loam	ML	A-4	0	0	90-100	80-100	80-100	70-90	15-20	NP-5
	13-23	Silt loam, clay loam, gravelly silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	23-38	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	38-48	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
179: Laufer-----	0-4	Very stony silt loam	GM	A-2, A-4	25-50	15-35	50-65	45-60	35-50	30-45	30-40	5-10
	4-8	Very cobbly clay loam, very gravelly clay loam, very cobbly silty clay loam	GC	A-2, A-7	0-10	25-35	50-65	40-60	30-50	25-45	40-45	20-25
	8-16	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0-15	30-60	35-55	30-50	25-40	20-30	35-45	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index	
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200			
	In				Pct	Pct					Pct		
180: Thiessen-----	0-3	Very cobbly silt loam	GC-GM, GM	A-4	0-10	25-40	50-65	45-60	40-55	35-50	25-35	5-10	
	3-6	Very cobbly clay loam, very gravelly clay loam, very gravelly silty clay loam	GC	A-2, A-6	0	15-45	50-65	45-60	35-50	30-45	35-40	20-25	
	6-14	Very gravelly clay loam, extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	15-55	35-55	30-50	20-40	20-30	35-45	20-30	
	14-23	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-75	30-70	20-40	20-30	35-45	20-30	
	23-34	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-60	30-55	20-40	20-30	35-45	20-30	
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---	
	181: Laufer-----	0-4	Very stony silt loam	GM	A-2, A-4	25-50	15-35	50-65	45-60	35-50	30-45	30-40	5-10
		4-8	Very cobbly clay loam, very gravelly clay loam, very cobbly silty clay loam	GC	A-2, A-7	0-10	25-35	50-65	40-60	30-50	25-45	40-45	20-25
8-16		Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0-15	30-60	35-55	30-50	25-40	20-30	35-45	20-30	
16-26		Unweathered bedrock			---	---	---	---	---	---	---	---	



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
182: Thiessen-----	0-3	Very cobbly silt loam	GC-GM, GM	A-4	0-10	25-40	50-65	45-60	40-55	35-50	25-35	5-10
	3-6	Very cobbly clay loam, very gravelly clay loam, very gravelly silty clay loam	GC	A-2, A-6	0	15-45	50-65	45-60	35-50	30-45	35-40	20-25
	6-14	Very gravelly clay loam, extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	15-55	35-55	30-50	20-40	20-30	35-45	20-30
	14-23	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-75	30-70	20-40	20-30	35-45	20-30
	23-34	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0	30-55	35-60	30-55	20-40	20-30	35-45	20-30
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----												





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
183: Gwinly-----	0-4	Very stony silt loam	CL, CL-ML	A-4	15-30	25-40	65-95	60-90	55-80	50-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
184: Licksillet----	0-7	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-4	10-15	30-45	60-90	55-80	50-75	40-60	20-30	NP-10
	7-19	Very cobbly sandy loam, extremely cobbly loam	GC, GC-GM, SC	A-2, A-4, A-6	10-20	30-50	45-75	40-75	35-70	20-55	25-35	5-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Dixiejett-----	0-6	Gravelly loam	CL-ML, GC-GM	A-4	0-10	0-10	65-90	60-80	55-75	40-60	20-30	5-10
	6-10	Very gravelly loam, extremely gravelly loam	GC-GM	A-2, A-4	0-10	10-25	30-60	25-55	25-50	20-45	20-30	5-10
	10-18	Very gravelly loam, very gravelly clay loam, extremely gravelly loam	GC	A-2	0-25	15-30	25-50	20-45	20-40	15-35	30-40	10-15
	18-27	Extremely gravelly loam, very gravelly clay loam, very gravelly loam	GC	A-2	0-25	15-30	25-50	20-45	20-40	15-35	30-40	10-15
	27-43	Very gravelly loam, very gravelly clay loam, extremely gravelly loam	GC-GM	A-2, A-4	10-25	15-40	25-70	20-65	20-50	15-40	27-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
185: Licksillet-----	0-7	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-4	10-15	30-45	60-90	55-80	50-75	40-60	20-30	NP-10
	7-19	Very cobbly sandy loam, extremely cobbly loam	GC, GC-GM, SC	A-2, A-4, A-6	10-20	30-50	45-75	40-75	35-70	20-55	25-35	5-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Doublecreek-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	15-20	NP-5
	4-16	Silt loam, loam	ML	A-4	0	0	95-100	90-100	80-90	60-80	15-20	NP-5
	16-22	Loam, cobbly loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	65-85	55-75	20-30	5-10
	22-40	Sandy loam, cobbly fine sandy loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	55-75	45-70	20-30	5-10
	40-61	Cobbly fine sandy loam, sandy loam, silt loam	CL-ML, SC-SM	A-4	0-10	0-15	70-100	65-100	45-70	40-65	20-30	5-10
Rockly-----	0-3	Very cobbly loam	GC-GM, SC-SM	A-4	0-15	30-45	75-85	70-80	60-75	40-60	25-35	5-10
	3-7	Extremely cobbly loam, very cobbly clay loam	SC, SC-SM, GC	A-2, A-4, A-6	0-10	30-50	40-75	35-70	35-70	25-55	25-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
186: Licksillet-----	0-7	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-4	10-15	30-45	60-90	55-80	50-75	40-60	20-30	NP-10
	7-19	Very cobbly sandy loam, extremely cobbly loam	GC, GC-GM, SC	A-2, A-4, A-6	10-20	30-50	45-75	40-75	35-70	20-55	25-35	5-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
186: Doublecreek-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	15-20	NP-5
	4-16	Silt loam, loam	ML	A-4	0	0	95-100	90-100	80-90	60-80	15-20	NP-5
	16-22	Loam, cobbly loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	65-85	55-75	20-30	5-10
	22-40	Sandy loam, cobbly fine sandy loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	55-75	45-70	20-30	5-10
	40-61	Cobbly fine sandy loam, sandy loam, silt loam	CL-ML, SC-SM	A-4	0-10	0-15	70-100	65-100	45-70	40-65	20-30	5-10
Rockly-----	0-3	Very cobbly loam	GC-GM, SC-SM	A-4	0-15	30-45	75-85	70-80	60-75	40-60	25-35	5-10
	3-7	Extremely cobbly loam, very cobbly clay loam	GC, SC-SM, SC	A-2, A-4, A-6	0-10	30-50	40-75	35-70	35-70	25-55	25-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
187: Limberjim-----	0-5	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	5-15	Silt loam, very fine sandy loam	ML	A-5	0	0	90-100	85-100	75-90	60-80	40-50	NP-5
	15-20	Silt loam, loam, gravelly silt loam	CL-ML, GC-GM	A-4	0-10	0-15	70-90	65-85	60-75	45-60	25-30	5-10
	20-41	Very gravelly silt loam, very gravelly loam, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay loam	GC, GC-GM	A-2, A-4, A-6	0-15	0-45	30-80	20-75	20-50	15-45	25-35	5-15
	41-51	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
188:												
Limberjim-----	0-5	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	5-15	Silt loam, very fine sandy loam	ML	A-5	0	0	90-100	85-100	75-90	60-80	40-50	NP-5
	15-20	Silt loam, loam, gravelly silt loam	CL-ML, GC-GM	A-4	0-10	0-15	70-90	65-85	60-75	45-60	25-30	5-10
	20-41	Very gravelly silt loam, very gravelly loam, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay loam	GC, GC-GM	A-2, A-4, A-6	0-15	0-45	30-80	20-75	20-50	15-45	25-35	5-15
	41-51	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
189: Limberjim-----	0-5	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	5-15	Silt loam, very fine sandy loam	ML	A-5	0	0	90-100	85-100	75-90	60-80	40-50	NP-5
	15-20	Silt loam, loam, gravelly silt loam	CL-ML, GC-GM	A-4	0-10	0-15	70-90	65-85	60-75	45-60	25-30	5-10
	20-41	Very gravelly silt loam, very gravelly loam, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay loam	GC, GC-GM	A-2, A-4, A-6	0-15	0-45	30-80	20-75	20-50	15-45	25-35	5-15
	41-51	Unweathered bedrock			---	---	---	---	---	---	---	---
Syrupcreek-----	0-3	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	3-14	Silt loam, very fine sandy loam, loam	ML	A-5	0	0	90-100	85-100	70-85	50-75	40-50	NP-5
	14-22	Very cobbly loam, very cobbly silt loam, very gravelly silt loam	CL-ML, GC-GM	A-2, A-4	0-30	25-45	45-75	35-70	30-65	20-55	25-30	5-10
	22-28	Extremely cobbly clay loam, very cobbly loam, extremely cobbly loam, very stony clay loam	GC, GC-GM	A-2, A-4, A-6	0-30	25-45	45-75	35-70	30-65	20-50	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
190: Limberjim-----	0-5	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	5-15	Silt loam, very fine sandy loam	ML	A-5	0	0	90-100	85-100	75-90	60-80	40-50	NP-5
	15-20	Silt loam, loam, gravelly silt loam	CL-ML, GC-GM	A-4	0-10	0-15	70-90	65-85	60-75	45-60	25-30	5-10
	20-41	Very gravelly silt loam, very gravelly loam, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay loam	GC, GC-GM	A-6, A-2, A-4	0-15	0-45	30-80	20-75	20-50	15-45	25-35	5-15
	41-51	Unweathered bedrock			---	---	---	---	---	---	---	---
190: Syrupcreek-----	0-3	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	3-14	Silt loam, very fine sandy loam, loam	ML	A-5	0	0	90-100	85-100	70-85	50-75	40-50	NP-5
	14-22	Very cobbly loam, very cobbly silt loam, very gravelly silt loam	CL-ML, GC-GM	A-2, A-4	0-30	25-45	45-75	35-70	30-65	20-55	25-30	5-10
	22-28	Extremely cobbly clay loam, very cobbly loam, extremely cobbly loam, very stony clay loam	GC, GC-GM	A-2, A-4, A-6	0-30	25-45	45-75	35-70	30-65	20-50	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
191: Limberjim-----	0-5	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	5-15	Silt loam, very fine sandy loam	ML	A-5	0	0	90-100	85-100	75-90	60-80	40-50	NP-5
	15-20	Silt loam, loam, gravelly silt loam	CL-ML, GC-GM	A-4	0-10	0-15	70-90	65-85	60-75	45-60	25-30	5-10
	20-41	Very gravelly silt loam, very gravelly loam, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay loam	GC, GC-GM	A-2, A-4, A-6	0-15	0-45	30-80	20-75	20-50	15-45	25-35	5-15
	41-51	Unweathered bedrock			---	---	---	---	---	---	---	---
Tamara-----	0-4	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	4-15	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	15-30	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	30-51	Gravelly loam, clay loam, gravelly clay loam, silty clay loam	CL	A-6	0	0-15	70-95	65-90	60-85	55-80	30-40	10-15
	51-60	Clay loam, gravelly clay loam, loam, silty clay loam	CL	A-6	0	0-10	65-95	60-90	55-85	50-80	35-40	10-15



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
192: Linecreek-----	0-9	Extremely cobble loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobbly loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	GM, ML	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobble sandy loam	GC, GC-GM, CL-ML	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
192: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
193: Lookingglass----	0-22	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	75-90	25-35	NP-10
	22-23	Silt loam, silty clay loam	ML	A-4	0	0-10	90-100	85-100	80-95	70-90	30-40	5-10
	23-42	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	90-100	85-100	75-100	65-95	40-55	20-30
	42-60	Silty clay loam, cobbly silty clay loam	CL	A-6, A-7	0	0-35	85-100	80-100	70-100	65-95	35-45	15-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
194: Lookingglass----	0-22	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	75-90	25-35	NP-10
	22-23	Silt loam, silty clay loam	ML	A-4	0	0-10	90-100	85-100	80-95	70-90	30-40	5-10
	23-42	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	90-100	85-100	75-100	65-95	40-55	20-30
	42-60	Silty clay loam, cobbly silty clay loam	CL	A-6, A-7	0	0-35	85-100	80-100	70-100	65-95	35-45	15-20
195: Lookingglass, stony-----	0-22	Stony silt loam	ML	A-4	15-30	10-15	95-100	95-100	85-100	75-90	25-35	NP-10
	22-23	Silt loam, silty clay loam	ML	A-4	0	0-10	90-100	85-100	80-95	70-90	30-40	5-10
	23-42	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	90-100	85-100	75-100	65-95	40-55	20-30
	42-60	Silty clay loam, cobbly silty clay loam	CL	A-6, A-7	0	0-35	85-100	80-100	70-100	65-95	35-45	15-20
196: Lookingglass, cobbly-----	0-22	Cobbly silt loam	ML	A-4	0	15-20	95-100	90-100	85-100	75-90	25-35	NP-10
	22-23	Silt loam, silty clay loam	ML	A-4	0	0-10	90-100	85-100	80-95	70-90	30-40	5-10
	23-42	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	90-100	85-100	75-100	65-95	40-55	20-30
	42-60	Silty clay loam, cobbly silty clay loam	CL	A-6, A-7	0	0-35	85-100	80-100	70-100	65-95	35-45	15-20
Lookingglass----	0-22	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	75-90	25-35	NP-10
	22-23	Silt loam, silty clay loam	ML	A-4	0	0-10	90-100	85-100	80-95	70-90	30-40	5-10
	23-42	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	90-100	85-100	75-100	65-95	40-55	20-30
	42-60	Silty clay loam, cobbly silty clay loam	CL	A-6, A-7	0	0-35	85-100	80-100	70-100	65-95	35-45	15-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
197:												
Lookingglass----	0-22	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	75-90	25-35	NP-10
	22-23	Silt loam, silty clay loam	ML	A-4	0	0-10	90-100	85-100	80-95	70-90	30-40	5-10
	23-42	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	90-100	85-100	75-100	65-95	40-55	20-30
	42-60	Silty clay loam, cobbly silty clay loam	CL	A-6, A-7	0	0-35	85-100	80-100	70-100	65-95	35-45	15-20
Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
198:												
Lookingglass----	0-22	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	75-90	25-35	NP-10
	22-23	Silt loam, silty clay loam	ML	A-4	0	0-10	90-100	85-100	80-95	70-90	30-40	5-10
	23-42	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-10	90-100	85-100	75-100	65-95	40-55	20-30
	42-60	Silty clay loam, cobbly silty clay loam	CL	A-6, A-7	0	0-35	85-100	80-100	70-100	65-95	35-45	15-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
198: Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
199: Lostine-----	0-12	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-5
	12-47	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	90-95	70-90	20-30	NP-5
	47-60	Silt loam, gravelly loam, silty clay loam	GM, ML, SM	A-2, A-4	0	0-10	60-100	50-100	40-100	30-95	15-35	NP-10
	60-65	Sandy loam, gravelly sandy loam, very gravelly sandy loam	GM, SM	A-2	0	0-10	40-95	35-85	20-65	10-50	15-20	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
200: Mallory-----	0-3	Very stony silt loam	CL, CL-ML, GC-GM	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	3-8	Very stony silt loam	CL-ML, GC-GM, CL	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	8-11	Very cobbly clay loam	CL, GC, GM	A-6, A-7	0-10	25-30	50-75	45-70	40-65	35-55	35-45	10-20
	11-18	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	18-26	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
201: Mallory-----	0-3	Very stony silt loam	CL, CL-ML, GC-GM	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	3-8	Very stony silt loam	CL-ML, GC-GM, CL	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	8-11	Very cobbly clay loam	CL, GC, GM	A-6, A-7	0-10	25-30	50-75	45-70	40-65	35-55	35-45	10-20
	11-18	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	18-26	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					In						Pct	Pct
202: Mallory-----	In				Pct	Pct					Pct	
	0-3	Very stony silt loam	CL, CL-ML, GC-GM	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	3-8	Very stony silt loam	CL-ML, GC-GM, CL	A-4	15-45	15-30	50-85	45-80	40-75	35-65	25-35	5-10
	8-11	Very cobbly clay loam	CL, GC, GM	A-6, A-7	0-10	25-30	50-75	45-70	40-65	35-55	35-45	10-20
	11-18	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	18-26	Extremely cobbly clay, very cobbly clay, extremely cobbly silty clay, extremely gravelly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	15-45	15-40	45-55	20-30
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Lawyer-----	0-4	Stony silt loam	CL	A-6	10-25	0-10	80-95	75-90	60-80	55-75	25-35	10-15
	4-11	Gravelly loam, cobbly loam, gravelly silt loam, silt loam	CL, GC, SC	A-6	0-10	10-30	65-90	60-85	55-75	40-65	25-35	10-15
	11-23	Very gravelly clay loam, very cobbly clay loam	GC	A-2, A-6	0-10	15-45	55-65	45-55	40-50	30-40	35-40	15-20
	23-35	Very gravelly clay loam, very cobbly clay loam	GC	A-2, A-6	0-10	25-40	55-65	45-55	40-50	30-40	35-40	15-20
	35-44	Very cobbly clay, extremely gravelly clay loam, extremely cobbly clay, very gravelly clay loam	GC	A-2, A-6, A-7	0-10	25-55	50-65	45-55	40-55	30-50	35-50	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
202: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
203: Matheny-----	0-4	Silt loam	CL	A-6	0	0-10	95-100	90-100	80-100	70-90	25-35	10-15
	4-14	Silt loam, gravelly silt loam, very cobbly loam	CL	A-6	0	0-30	70-95	60-90	55-85	50-80	25-35	10-15
	14-22	Very gravelly clay loam, very cobbly loam, very cobbly clay loam	GC	A-6, A-7	0-10	25-45	50-65	45-60	40-55	35-45	35-45	15-25
	22-44	Extremely cobbly loam, very cobbly loam, very gravelly clay loam, extremely gravelly loam, very cobbly clay loam	GC, SC	A-2, A-6	0-10	40-55	30-85	25-70	25-55	20-40	25-35	10-20
	44-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Linville-----	0-18	Silt loam	CL-ML	A-4	0	0-10	95-100	90-100	80-90	70-85	20-30	5-10
	18-38	Silt loam, cobbly silt loam	SC-SM, CL-ML	A-4	0	10-25	75-90	70-90	65-80	40-60	20-30	5-10
	38-47	Cobbly silt loam, very cobbly loam	CL	A-6	0	25-50	60-90	55-80	50-75	50-70	30-40	10-15
	47-60	Cobbly silt loam, very cobbly loam, cobbly loam	GC, CL	A-6	0	25-45	55-75	50-70	45-65	40-60	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
203: Laufer-----	0-4	Very stony silt loam	GM	A-2, A-4	25-50	15-35	50-65	45-60	35-50	30-45	30-40	5-10
	4-8	Very cobbly clay loam, very gravelly clay loam, very cobbly silty clay loam	GC	A-2, A-7	0-10	25-35	50-65	40-60	30-50	25-45	40-45	20-25
	8-16	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay	GC	A-2	0-15	30-60	35-55	30-50	25-40	20-30	35-45	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
204: Matterhorn-----	0-3	Gravelly fine sandy loam	SM	A-4	0	0-10	75-85	70-80	50-70	35-45	10-20	NP-5
	3-10	Cobbly sandy loam, gravelly sandy loam	SM	A-1, A-2	0	10-25	70-85	65-80	40-55	20-30	10-20	NP-5
	10-27	Extremely cobbly loamy sand, extremely cobbly sand, extremely gravelly sand	GM, GP-GM	A-1	0-15	30-65	30-55	20-50	10-40	0-15	0-15	NP
	27-46	Extremely cobbly loamy sand, extremely cobbly sand, extremely gravelly sand	GM, GP-GM	A-1	0-15	30-65	30-55	20-50	10-40	0-15	0-15	NP
	46-63	Extremely cobbly loamy sand, extremely cobbly sand, extremely gravelly sand	GM, GP-GM	A-1	0-15	30-65	30-55	20-50	10-40	0-15	0-15	NP

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
205: Minam-----	0-19	Loam	ML	A-4	0	0	85-100	80-100	70-95	50-75	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
206: Minam-----	0-19	Loam	ML	A-4	0	0	85-100	80-100	70-95	50-75	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
207: Minam-----	0-19	Gravelly loam	ML, SM	A-4	0	0-10	70-90	65-85	60-75	45-60	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
208: Minam-----	0-19	Gravelly loam	ML, SM	A-4	0	0-10	70-90	65-85	60-75	45-60	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
209: Minam-----	0-19	Cobbly loam	ML	A-4	0-5	15-25	75-100	70-100	60-85	50-70	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
210: Minam-----	0-19	Stony loam	ML	A-4	10-15	0-10	85-95	80-90	70-85	50-70	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
211: Minam-----	0-19	Stony loam	ML	A-4	10-15	0-10	85-95	80-90	70-85	50-70	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
212: Minam-----	0-19	Loam	ML	A-4	0	0	85-100	80-100	70-95	50-75	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
212: Minam, gravelly	0-19	Gravelly loam	ML, SM	A-4	0	0-10	70-90	65-85	60-75	45-60	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
Endoaquepts-----	0-5	Mucky silt loam	CL-ML	A-4	0	0-10	90-100	85-100	80-100	55-90	20-30	5-10
	5-21	Silt loam, loam	CL-ML	A-4	0	0-10	90-100	85-100	80-100	55-90	20-30	5-10
	21-42	Silt loam, loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-40	5-15
	42-56	Silty clay loam, gravelly clay loam, gravelly silt loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-10	65-95	60-90	60-85	45-80	25-40	5-15
	56-62	Cobbly silty clay loam, gravelly clay loam, silt loam	CL	A-6	0	0-25	65-95	60-90	60-85	50-80	30-40	10-15
213: Minam, gravelly	0-19	Gravelly loam	ML, SM	A-4	0	0-10	75-85	70-80	60-75	45-60	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
213: Minam, stony----	0-19	Stony loam	ML	A-4	10-15	0-10	85-95	80-90	70-85	50-70	25-35	NP-10
	19-35	Loam, clay loam	ML	A-4	0	0	85-100	80-100	65-95	50-80	30-40	5-10
	35-60	Very gravelly loam, very cobbly loam, extremely gravelly loam, very gravelly clay loam, very cobbly clay loam	GM	A-1, A-2, A-4	0-25	0-40	30-65	30-50	25-50	20-40	30-40	5-10
Endoaquepts-----	0-5	Mucky silt loam	CL-ML	A-4	0	0-10	100	80-100	80-100	55-90	20-30	5-10
	5-21	Silt loam, loam	CL-ML	A-4	0	0-10	100	80-100	80-100	55-90	20-30	5-10
	21-42	Silt loam, loam, clay loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-40	5-15
	42-56	Silty clay loam, gravelly clay loam, gravelly silt loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-10	70-90	65-85	60-85	45-80	25-40	5-15
	56-62	Cobbly silty clay loam, gravelly clay loam, silt loam	CL	A-6	0	0-25	80-100	75-95	70-95	50-90	30-40	10-15



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
214: Mippon-----	0-3	Loam	CL-ML, SC-SM, CL	A-4	0	0	85-100	75-100	65-95	45-75	20-30	5-10
	3-6	Fine sandy loam, very fine sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	50-95	30-65	15-25	NP-5
	6-10	Fine sandy loam, very fine sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-100	50-95	30-65	15-25	NP-5
	10-21	Extremely gravelly loamy sand, extremely cobbley loamy coarse sand, extremely cobbley loamy sand, very cobbley loamy sand, very gravelly loamy sand	GM, GP-GM, SM	A-1	0-30	15-45	40-70	35-65	20-50	5-20	0-10	NP
	21-60	Extremely gravelly loamy sand, extremely cobbley loamy coarse sand, extremely cobbley loamy sand, very cobbley loamy sand, very gravelly loamy sand	GM, GP-GM, SM	A-1	0-30	15-45	40-70	35-65	20-50	5-20	0-10	NP

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
215: Mountemily-----	0-4	Silt loam	ML	A-4	0	0-15	95-100	90-100	85-100	65-90	25-35	NP-5
	4-14	Silt loam, gravelly silt loam, cobbly silt loam	ML	A-4	0-10	0-20	75-100	70-100	65-100	50-90	25-35	NP-5
	14-29	Extremely cobbly silt loam, very cobbly silt loam, very gravelly loam, very cobbly loam	CL-ML, GC-GM	A-2, A-4	0-10	0-45	35-70	30-65	25-60	20-55	27-30	5-10
	29-60	Extremely cobbly silt loam, very gravelly silty clay loam, very gravelly loam	GC-GM	A-2, A-4	0-10	15-55	30-70	25-60	20-55	15-50	27-35	5-10
Troutmeadows----	0-3	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	35-40	NP-5
	3-16	Silt loam	ML	A-4	0-10	0-10	90-100	80-100	75-100	60-90	35-40	NP-5
	16-30	Very cobbly silt loam, extremely gravelly loam, very cobbly loam	GC-GM	A-2, A-4	0-15	25-65	40-60	25-55	20-50	15-45	20-25	5-10
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
216: Mountemily-----	0-4	Silt loam	ML	A-4	0	0-15	95-100	90-100	85-100	65-90	25-35	NP-5
	4-14	Silt loam, gravelly silt loam, cobbly silt loam	ML	A-4	0-10	0-20	75-100	70-100	65-100	50-90	25-35	NP-5
	14-29	Extremely cobbly silt loam, very cobbly silt loam, very gravelly loam, very cobbly loam	CL-ML, GC-GM	A-2, A-4	0-10	0-45	35-70	30-65	25-60	20-55	27-30	5-10
	29-60	Extremely cobbly silt loam, very gravelly silty clay loam, very gravelly loam	GC-GM	A-2, A-4	0-10	15-55	30-70	25-60	20-55	15-50	27-35	5-10
Troutmeadows----	0-3	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	35-40	NP-5
	3-16	Silt loam	ML	A-4	0-10	0-10	90-100	80-100	75-100	60-90	35-40	NP-5
	16-30	Very cobbly silt loam, extremely gravelly loam, very cobbly loam	GC-GM	A-2, A-4	0-15	25-65	40-60	25-55	20-50	15-45	20-25	5-10
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
217: Mountemily-----	0-4	Silt loam	ML	A-4	0	0-15	95-100	90-100	85-100	65-90	25-35	NP-5
	4-14	Silt loam, gravelly silt loam, cobbly silt loam	ML	A-4	0-10	0-20	75-100	70-100	65-100	50-90	25-35	NP-5
	14-29	Extremely cobbly silt loam, very cobbly silt loam, very gravelly loam, very cobbly loam	CL-ML, GC-GM	A-2, A-4	0-10	0-45	35-70	30-65	25-60	20-55	27-30	5-10
	29-60	Extremely cobbly silt loam, very gravelly silty clay loam, very gravelly loam	GC-GM	A-2, A-4	0-10	15-55	30-70	25-60	20-55	15-50	27-35	5-10
Troutmeadows----	0-3	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	35-40	NP-5
	3-16	Silt loam	ML	A-4	0-10	0-10	90-100	80-100	75-100	60-90	35-40	NP-5
	16-30	Very cobbly silt loam, extremely gravelly loam, very cobbly loam	GC-GM	A-2, A-4	0-15	25-65	40-60	25-55	20-50	15-45	20-25	5-10
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
219: Needhill-----	0-9	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	20-25	NP-5
	9-20	Gravelly silt loam, silt loam, gravelly loam, gravelly fine sandy loam	GM, ML	A-4	0	0	80-95	70-90	50-90	30-80	20-25	NP-5
	20-35	Gravelly loam, gravelly silt loam, silt loam, gravelly fine sandy loam	CL-ML, GC-GM	A-4	0	0-10	65-95	60-90	50-85	40-80	20-30	5-10
	35-53	Very cobbly loam, very gravelly silt loam, very gravelly silty clay loam, very gravelly clay loam	CL, GC	A-2, A-6	0-15	10-25	35-70	30-65	30-60	25-55	25-35	10-15
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---
Parsnip-----	0-6	Gravelly silt loam	CL, CL-ML, ML, SC-SM	A-4	0	0-10	60-80	55-75	50-75	45-75	25-35	5-10
	6-9	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	65-90	25-35	5-10
	9-13	Silty clay loam, silt loam	CL, ML	A-6	0	0-10	90-100	85-100	70-100	55-95	35-40	10-15
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker-----	0-2	Extremely cobbly silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobbly silt loam, extremely cobbly loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
222: Olot-----	0-19	Silt loam	ML	A-4	0	0-10	100	100	90-100	70-90	30-40	NP-5
	19-22	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	55-90	50-85	45-85	30-80	35-40	10-15
	22-36	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	45-90	40-85	35-85	30-80	35-40	10-15
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
223: Olot-----	0-19	Silt loam	ML	A-4	0	0-10	100	100	90-100	70-90	30-40	NP-5
	19-22	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	55-90	50-85	45-85	30-80	35-40	10-15
	22-36	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	45-90	40-85	35-85	30-80	35-40	10-15
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
226: Bocker-----	0-2	Extremely cobblely silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobblely silt loam, extremely cobblely loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
227: Phys-----	0-10	Cobblely loam	GM, ML, SM	A-4	0-10	10-25	70-85	65-80	55-75	45-70	25-35	NP-10
	10-16	Cobblely clay loam, loam, cobblely loam, clay loam	ML	A-4	0-5	15-25	70-90	65-80	55-75	50-70	35-40	NP-10
	16-23	Very cobblely clay loam, very gravelly clay loam	GM, ML	A-2, A-6	0-15	30-50	50-85	45-85	40-85	30-70	35-40	10-15
	23-60	Very cobblely loam, extremely cobblely sandy clay loam	GM, SM	A-2, A-4	0-30	30-65	55-85	55-85	45-80	25-65	20-30	NP-5
228: Phys-----	0-10	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	65-80	60-75	50-75	40-70	25-35	NP-10
	10-16	Clay loam, loam, cobblely clay loam, cobblely loam	ML	A-4	0-5	15-25	70-90	65-85	55-75	50-70	35-40	NP-10
	16-23	Very cobblely clay loam, very gravelly clay loam	ML, GM	A-2, A-6	0-15	15-50	45-85	40-85	40-85	30-70	35-40	10-15
	23-60	Very cobblely loam, extremely cobblely sandy clay loam	SM, GM	A-4, A-2	0-30	30-65	35-85	30-85	30-80	25-65	20-30	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
228:												
Doublecreek-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	15-20	NP-5
	4-16	Silt loam, loam	ML	A-4	0	0	95-100	90-100	80-90	60-80	15-20	NP-5
	16-22	Loam, cobbly loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	65-85	55-75	20-30	5-10
	22-40	Sandy loam, cobbly fine sandy loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	55-75	45-70	20-30	5-10
	40-61	Cobbly fine sandy loam, sandy loam, silt loam	CL-ML, SC-SM	A-4	0-10	0-15	70-100	65-100	45-70	40-65	20-30	5-10
Collegecreek----	0-8	Loam	ML	A-4	0	0	95-100	90-100	85-95	60-75	30-40	NP-5
	8-24	Fine sandy loam, loam	ML	A-4	0	0	95-100	90-100	85-95	60-75	30-40	NP-5
	24-28	Fine sandy loam, loam	ML	A-4	0	0-15	90-100	85-100	80-95	60-75	30-40	NP-5
	28-41	Gravelly sandy loam, silt loam, gravelly silt loam, fine sandy loam	CL-ML, ML	A-4	0	0-30	80-100	75-100	65-90	50-70	20-25	NP-5
	41-61	Cobbly loam, very fine sandy loam, silt loam	CL-ML, ML	A-4	0-10	0-30	80-100	75-100	65-90	50-70	15-30	NP-10
229:												
Phys-----	0-10	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	65-80	60-75	50-75	40-70	25-35	NP-10
	10-16	Cobbly loam, cobbly clay loam, loam, clay loam	ML	A-4	0-5	15-25	70-90	65-85	55-75	50-70	35-40	NP-10
	16-23	Very cobbly clay loam, very gravelly clay loam	GM, ML	A-2, A-6	0-15	15-50	45-85	40-85	40-85	30-70	35-40	10-15
	23-60	Very cobbly loam, extremely cobbly sandy clay loam	SM, GM	A-4, A-2	0-30	30-65	35-85	30-85	30-80	25-65	20-30	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
229: Doublecreek-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	15-20	NP-5
	4-16	Silt loam, loam	ML	A-4	0	0	95-100	90-100	80-90	60-80	15-20	NP-5
	16-22	Loam, cobbly loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	65-85	55-75	20-30	5-10
	22-40	Sandy loam, cobbly fine sandy loam, silt loam	CL-ML	A-4	0	0-15	90-100	80-100	55-75	45-70	20-30	5-10
	40-61	Cobbly fine sandy loam, sandy loam, silt loam	CL-ML, SC-SM	A-4	0-10	0-15	70-100	65-100	45-70	40-65	20-30	5-10
Collegecreek----	0-8	Loam	ML	A-4	0	0	95-100	90-100	85-95	60-75	30-40	NP-5
	8-24	Fine sandy loam, loam	ML	A-4	0	0	95-100	90-100	85-95	60-75	30-40	NP-5
	24-28	Fine sandy loam, loam	ML	A-4	0	0-15	90-100	85-100	80-95	60-75	30-40	NP-5
	28-41	Gravelly sandy loam, silt loam, gravelly silt loam, fine sandy loam	CL-ML, ML	A-4	0	0-30	80-100	75-100	65-90	50-70	20-25	NP-5
	41-61	Cobbly loam, very fine sandy loam, silt loam	CL-ML, ML	A-4	0-10	0-30	80-100	75-100	65-90	50-70	15-30	NP-10
230: Powwatka-----	0-14	Silt loam	ML	A-4	0	0	100	100	90-100	70-80	30-40	5-10
	14-24	Silty clay loam	ML	A-6, A-7	0	0	100	85-100	75-100	70-95	35-45	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
231: Powwatka-----	0-14	Silt loam	ML	A-4	0	0	100	100	90-100	70-80	30-40	5-10
	14-24	Silty clay loam	ML	A-6, A-7	0	0	100	85-100	75-100	70-95	35-45	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
232: Powwatka-----	0-14	Silt loam	ML	A-4	0	0	100	100	90-100	70-80	30-40	5-10
	14-24	Silty clay loam	ML	A-6, A-7	0	0	100	85-100	75-100	70-95	35-45	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
233: Powwatka-----	0-14	Silt loam	ML	A-4	0	0	100	100	90-100	70-80	30-40	5-10
	14-24	Silty clay loam	ML	A-6, A-7	0	0	100	85-100	75-100	70-95	35-45	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
234: Puzzlecreek-----	0-9	Very stony very fine sandy loam	GM, SM	A-4	15-30	15-25	65-80	60-75	50-70	30-50	30-40	NP-5
	9-13	Very stony very fine sandy loam, very stony silt loam, very cobble loam, very stony loam	GM, SM	A-4	15-30	25-40	55-75	50-70	50-60	35-50	15-25	NP-5
	13-39	Very stony very fine sandy loam, extremely stony very fine sandy loam, extremely cobble silt loam, extremely cobble loam	GC-GM	A-2, A-4	15-40	25-40	35-75	30-70	30-60	20-50	20-25	5-10
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---
235: Ramo-----	0-18	Silty clay loam	CL, ML	A-7	0	0-10	90-100	85-100	80-100	80-95	40-50	15-20
	18-41	Gravelly clay, gravelly silty clay loam, cobble clay	CH, GC, SC	A-7	0-10	10-30	55-80	55-75	50-75	40-70	50-60	25-35
	41-65	Gravelly silty clay loam, very cobble clay loam	GM, ML, SM	A-7	0-15	10-30	55-85	55-80	45-80	40-75	40-50	15-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
236: Ramo-----	0-18	Silty clay loam	CL, ML	A-7	0	0-10	90-100	85-100	80-100	80-95	40-50	15-20
	18-41	Gravelly clay, gravelly silty clay loam, cobbly clay	CH, GC, SC	A-7	0-10	10-30	55-80	55-75	50-75	40-70	50-60	25-35
	41-65	Gravelly silty clay loam, very cobbly clay loam	GM, ML, SM	A-7	0-15	10-30	55-85	55-80	45-80	40-75	40-50	15-20
237: Ramo-----	0-18	Silty clay loam	CL, ML	A-7	0	0-10	90-100	85-100	80-100	80-95	40-50	15-20
	18-41	Gravelly clay, gravelly silty clay loam, cobbly clay	CH, GC, SC	A-7	0-10	10-30	55-80	55-75	50-75	40-70	50-60	25-35
	41-65	Gravelly silty clay loam, very cobbly clay loam	GM, ML, SM	A-7	0-15	10-30	55-85	55-80	45-80	40-75	40-50	15-20
238: Ramo-----	0-18	Silty clay loam	CL, ML	A-7	0	0-10	90-100	85-100	80-100	80-95	40-50	15-20
	18-41	Gravelly clay, gravelly silty clay loam, cobbly clay	CH, GC, SC	A-7	0-10	10-30	55-80	55-75	50-75	40-70	50-60	25-35
	41-65	Gravelly silty clay loam, very cobbly clay loam	GM, ML, SM	A-7	0-15	10-30	55-85	55-80	45-80	40-75	40-50	15-20
Conley-----	0-14	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-15
	14-23	Silt loam, silty clay loam	ML	A-4	0	0	100	100	90-100	70-95	25-35	NP-10
	23-40	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-55	20-30
	40-60	Silty clay loam, gravelly silty clay loam	CL	A-6	0	0-15	60-100	55-100	55-100	50-95	30-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
239: Reavis-----	0-15	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	85-100	70-95	55-85	25-35	5-10
	15-34	Silt loam, loam	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	65-90	50-75	25-40	5-15
	34-41	Silt loam, loam, gravelly silt loam	CL, CL-ML, SC-SM	A-4, A-6	0	0	65-95	60-90	50-85	35-70	25-40	5-15
	41-60	Very gravelly loam, very gravelly silt loam	CL-ML, GM, ML, SM	A-2, A-4	0-10	0	35-75	30-50	25-50	20-50	20-30	NP-10
240: Redmount-----	0-12	Silt loam	ML	A-4	0	0	80-100	75-100	70-100	50-90	20-30	NP-5
	12-20	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	20-32	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	32-60	Very gravelly sandy loam, extremely gravelly sandy loam, very gravelly loamy sand	GP-GM, GC-GM, GM	A-1	0-10	0-25	30-55	20-50	10-35	5-20	15-25	NP-5
241: Redmount-----	0-12	Silt loam	ML	A-4	0	0	80-100	75-100	70-100	50-90	20-30	NP-5
	12-20	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	20-32	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	32-60	Very gravelly sandy loam, extremely gravelly sandy loam, very gravelly loamy sand	GP-GM, GC-GM, GM	A-1	0-10	0-25	30-55	20-50	10-35	5-20	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
242: Redmount-----	0-12	Gravelly silt loam	ML	A-4	0	0	65-80	60-75	60-75	50-70	20-30	NP-5
	12-20	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	20-32	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	32-60	Very gravelly sandy loam, extremely gravelly sandy loam, very gravelly loamy sand	GP-GM, GC-GM, GM	A-1	0-10	0-25	30-55	20-50	10-35	5-20	15-25	NP-5
243: Redmount-----	0-12	Silt loam	ML	A-4	0	0	80-100	75-100	70-100	50-90	20-30	NP-5
	12-20	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	20-32	Silt loam, loam, sandy loam	ML	A-4	0	0	85-100	80-100	70-90	50-85	20-30	NP-5
	32-60	Very gravelly sandy loam, extremely gravelly sandy loam, very gravelly loamy sand	GM, GP-GM, GC-GM	A-1	0-10	0-25	30-55	20-50	10-35	5-20	15-25	NP-5
Cheval-----	0-15	Silt loam	ML	A-4	0	0	85-100	75-100	70-100	55-90	20-30	NP-5
	15-24	Loam, gravelly loam, gravelly silt loam	GM, ML, SM	A-4	0	0	70-100	60-100	55-95	40-75	20-30	NP-5
	24-31	Loam, gravelly loam, gravelly silt loam	GM, ML, SM	A-4	0	0	70-100	60-100	55-95	40-75	20-30	NP-5
	31-60	Very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0	0	30-55	25-50	10-40	5-15	0-15	NP
244: Riverwash-----	0-60	Stratified gravel to sand			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
247: Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
248: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
249: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
250: Linecreek-----	0-9	Extremely cobbly loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobbly loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobbly fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobbly fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobbly sandy loam	GC, GC-GM, CL-ML	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
251: Dixiejett-----	0-6	Gravelly loam	CL-ML, GC-GM	A-4	0-10	0-10	65-90	60-80	55-75	40-60	20-30	5-10
	6-10	Very gravelly loam, extremely gravelly loam	GC-GM	A-2, A-4	0-10	10-25	30-60	25-55	25-50	20-45	20-30	5-10
	10-18	Very gravelly loam, very gravelly clay loam, extremely gravelly loam	GC	A-2	0-25	15-30	25-50	20-45	20-40	15-35	30-40	10-15
	18-27	Extremely gravelly loam, very gravelly clay loam, very gravelly loam	GC	A-2	0-25	15-30	25-50	20-45	20-40	15-35	30-40	10-15
	27-43	Very gravelly loam, very gravelly clay loam, extremely gravelly loam	GC-GM	A-2, A-4	10-25	15-40	25-70	20-65	20-50	15-40	27-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
252: Rockly-----	0-3	Very cobbly loam	GC-GM, SC-SM	A-4	0-15	30-45	75-85	70-80	60-75	40-60	25-35	5-10
	3-7	Extremely cobbly loam, very cobbly clay loam	SC-SM, GC, SC	A-2, A-4, A-6	0-10	30-50	40-75	35-70	35-70	25-55	25-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
254: Rondowa-----	0-10	Silt loam	ML	A-4	0	0-10	90-100	85-100	75-100	55-85	25-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	SM, GM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
255: Rondowa-----	0-10	Silt loam	ML	A-4	0	0-10	90-100	85-100	75-100	55-85	25-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
256: Rondowa-----	0-10	Stony loam	GM, ML, SM	A-4	15-25	10-15	75-100	70-100	55-95	40-75	25-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
257: Rondowa-----	0-10	Stony loam	ML, SM, GM	A-4	15-25	10-15	75-100	70-100	55-95	40-75	25-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
258: Rondowa-----	0-10	Stony loam	GM, ML, SM	A-4	15-25	10-15	75-100	70-100	55-95	40-75	25-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	SM, GM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
259: Rondowa-----	0-10	Stony loam	SM, ML, GM	A-4	15-25	10-15	75-100	70-100	55-95	40-75	25-30	NP-5
	10-26	Gravelly loam, cobbly loam	SM, GM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	SM, GM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
260: Rondowa-----	0-10	Stony loam	GM, ML, SM	A-4	15-25	10-15	75-100	70-100	55-95	40-75	25-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
261: Rondowa-----	0-10	Bouldery loam	ML	A-4	15-25	0-10	85-95	80-90	70-85	50-70	20-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
262: Rondowa-----	0-10	Bouldery loam	ML	A-4	15-25	0-10	85-95	80-90	70-85	50-70	20-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
263: Rondowa-----	0-10	Bouldery loam	ML	A-4	15-25	0-10	85-95	80-90	70-85	50-70	20-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	SM, GM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
264: Rondowa-----	0-10	Bouldery loam	ML	A-4	15-25	0-10	85-95	80-90	70-85	50-70	20-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
265: Rondowa-----	0-10	Bouldery loam	ML	A-4	15-25	0-10	85-95	80-90	70-85	50-70	20-30	NP-5
	10-26	Gravelly loam, cobbly loam	GM, SM	A-4	0-10	0-25	60-75	55-70	50-65	40-50	25-30	NP-5
	26-60	Very cobbly sandy loam, very stony sandy loam, very cobbly loam	GM, SM	A-1, A-2	10-25	25-45	50-70	45-65	35-60	20-50	20-30	NP-5
266: Rubble land----	0-60	Fragmental material			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
267: Sag-----	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	80-95	70-85	25-35	5-10
	4-30	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	80-95	70-85	25-35	5-10
	30-37	Silty clay loam, clay loam, silt loam	CL, ML	A-6	0	0	95-100	95-100	80-95	65-85	30-40	5-15
	37-47	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-10	95-100	90-100	80-90	65-85	35-45	10-20
	47-61	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-10	95-100	90-100	80-90	65-85	35-45	10-20
268: Sag-----	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	80-95	70-85	25-35	5-10
	4-30	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	80-95	70-85	25-35	5-10
	30-37	Silty clay loam, clay loam, silt loam	CL, ML	A-6	0	0	95-100	95-100	80-95	65-85	30-40	5-15
	37-47	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0	95-100	90-100	80-90	65-85	35-45	10-20
	47-61	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0	95-100	90-100	80-90	65-85	35-45	10-20
269: Sag-----	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	80-95	70-85	25-35	5-10
	4-30	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	80-95	70-85	25-35	5-10
	30-37	Silty clay loam, clay loam, silt loam	CL, ML	A-6	0	0	95-100	95-100	80-95	65-85	30-40	5-15
	37-47	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0	95-100	90-100	80-90	65-85	35-45	10-20
	47-61	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0	95-100	90-100	80-90	65-85	35-45	10-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
270: Schrier-----	0-23	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100	65-90	25-35	5-10
	23-34	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	34-43	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	43-60	Clay loam, loam, gravelly loam	ML	A-4	0	0-10	60-100	55-100	45-100	35-80	30-40	5-10
271: Schrier-----	0-23	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100	65-90	25-35	5-10
	23-34	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	34-43	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	43-60	Clay loam, loam, gravelly loam	ML	A-4	0	0-10	60-100	55-100	45-100	35-80	30-40	5-10
Almota-----	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0-10	100	90-100	85-100	65-90	20-30	NP-10
	8-19	Silt loam, loam	CL, CL-ML	A-4, A-6	0	0-10	95-100	85-95	70-90	60-85	25-35	5-15
	19-29	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-95	65-95	55-85	20-35	5-15
	29-38	Cobbly silt loam, very gravelly loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-15	65-100	60-90	55-90	50-85	20-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
272: Schrier-----	0-23	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100	65-90	25-35	5-10
	23-34	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	34-43	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	43-60	Clay loam, loam, gravelly loam	ML	A-4	0	0-10	60-100	55-100	45-100	35-80	30-40	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
272:												
Almota-----	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0-10	100	90-100	85-100	65-90	20-30	NP-10
	8-19	Silt loam, loam	CL, CL-ML	A-4, A-6	0	0-10	95-100	85-95	70-90	60-85	25-35	5-15
	19-29	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-95	65-95	55-85	20-35	5-15
	29-38	Cobbly silt loam, very gravelly loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-15	65-100	60-90	55-90	50-85	20-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
273:												
Schuelke-----	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0-15	100	100	90-100	70-90	25-35	5-15
	5-12	Very cobbly silty clay loam, very cobbly clay loam	GM, ML, SM	A-2, A-6, A-7	0	30-45	50-75	45-70	40-70	30-65	35-45	10-15
	12-22	Very cobbly clay loam, extremely cobbly loam, very cobbly loam	CL, GC, SC	A-2, A-6	0	30-60	50-85	40-80	30-70	20-55	30-40	10-15
	22-33	Very cobbly clay loam, extremely cobbly loam, very cobbly loam	CL, GC, SC	A-2, A-6	0	30-60	50-85	40-85	30-70	20-55	30-40	10-15
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---
Schrier-----	0-23	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100	65-90	25-35	5-10
	23-34	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	34-43	Silty clay loam, clay loam, loam, gravelly loam	ML	A-4	0	0-10	80-100	75-100	70-100	65-95	30-40	5-10
	43-60	Clay loam, loam, gravelly loam	ML	A-4	0	0-10	60-100	55-100	45-100	35-80	30-40	5-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
273: Rockly-----	0-3	Very cobbly loam	SC-SM, GC-GM	A-4	0-15	30-45	75-85	70-80	60-75	40-60	25-35	5-10
	3-7	Extremely cobbly loam, very cobbly clay loam	SC, SC-SM, GC	A-2, A-4, A-6	0-10	30-50	40-75	35-70	35-70	25-55	25-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
274: Silverlake-----	0-8	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-85	20-30	5-10
	8-12	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-85	20-30	5-10
	12-18	Clay, gravelly clay, silty clay loam	CL, GC, SC	A-7	0	0-25	65-100	60-100	55-100	45-90	40-50	20-25
	18-24	Clay, gravelly clay, silty clay loam	CL, GC, SC	A-7	0	0-25	65-100	60-100	55-100	45-90	40-50	20-25
	24-31	Silty clay loam, gravelly silt loam, gravelly loam, gravelly clay loam	CL, GC, SC	A-6	0	0-25	60-100	55-100	50-95	40-80	30-40	10-15
	31-42	Very gravelly silt loam, silty clay loam, gravelly silt loam, gravelly loam, gravelly clay loam	CL, GC, SC	A-6	0	0-25	60-100	55-100	50-95	40-80	30-40	10-15
	42-57	Cemented material			---	---	---	---	---	---	---	---
	57-63	Very gravelly loamy sand, extremely gravelly loamy sand	GP-GM, SP-SM	A-1	0	0-25	35-60	25-50	15-30	5-10	10-20	NP-5



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
275: Slicklog-----	0-6	Gravelly loam	GM, ML	A-4, A-5	0	0-15	60-80	60-75	50-70	35-60	35-45	NP-5
	6-16	Very gravelly loam, very cobbly loam	GM	A-2, A-4, A-5	0	15-30	40-70	40-65	35-55	25-50	35-45	NP-5
	16-22	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	50-70	40-65	25-60	10-50	35-45	NP-5
	22-49	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	40-65	35-60	20-55	15-45	35-45	NP-5
	49-60	Extremely stony sandy loam, very cobbly sandy loam, very stony loamy sand	SM, SP-SM	A-1, A-2	0-55	15-30	60-80	55-75	30-55	10-30	15-25	NP-5
276: Slicklog-----	0-6	Gravelly loam	GM, ML	A-4, A-5	0	0-15	60-80	60-75	50-70	35-60	35-45	NP-5
	6-16	Very gravelly loam, very cobbly loam	GM	A-2, A-4, A-5	0	15-30	40-70	40-65	35-55	25-50	35-45	NP-5
	16-22	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	50-70	40-65	25-60	10-50	35-45	NP-5
	22-49	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	40-65	35-60	20-55	15-45	35-45	NP-5
	49-60	Extremely stony sandy loam, very cobbly sandy loam, very stony loamy sand	SM, SP-SM	A-1, A-2	0-55	15-30	60-80	55-75	30-55	10-30	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
276: Eastpine-----	0-14	Very cobbly loam	GM, SM	A-4	0-15	25-35	55-80	50-65	40-65	35-50	15-25	NP-5
	14-26	Extremely gravelly loam, extremely cobbly sandy loam, very cobbly sandy loam, very gravelly sandy loam	GC-GM	A-1, A-2, A-4	0-25	25-50	25-60	20-55	15-45	15-40	20-30	5-10
	26-38	Extremely cobbly sandy loam, extremely cobbly loam, extremely stony loam, very cobbly sandy loam	GC-GM	A-1, A-2, A-4	0-40	25-50	25-60	20-55	15-45	15-40	20-30	5-10
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
277: Slicklog-----	0-6	Gravelly loam	GM, ML	A-4, A-5	0	0-15	60-80	60-75	50-70	35-60	35-45	NP-5
	6-16	Very gravelly loam, very cobbly loam	GM	A-2, A-4, A-5	0	15-30	40-70	40-65	35-55	25-50	35-45	NP-5
	16-22	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	50-70	40-65	25-60	10-50	35-45	NP-5
	22-49	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	40-65	35-60	20-55	15-45	35-45	NP-5
	49-60	Extremely stony sandy loam, very cobbly sandy loam, very stony loamy sand	SM, SP-SM	A-1, A-2	0-55	15-30	60-80	55-75	30-55	10-30	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
277: Eastpine-----	0-14	Very cobbly loam	GM, SM	A-4	0-15	25-35	55-80	50-65	40-65	35-50	15-25	NP-5
	14-26	Extremely gravelly loam, extremely cobbly sandy loam, very cobbly sandy loam, very gravelly sandy loam	GC-GM	A-1, A-2, A-4	0-25	25-50	25-60	20-55	15-45	15-40	20-30	5-10
	26-38	Extremely cobbly sandy loam, extremely cobbly loam, extremely stony loam, very cobbly sandy loam	GC-GM	A-1, A-2, A-4	0-40	25-50	25-60	20-55	15-45	15-40	20-30	5-10
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
278: Slicklog-----	0-6	Gravelly loam	GM, ML	A-4, A-5	0	0-15	60-80	60-75	50-70	35-60	35-45	NP-5
	6-16	Very gravelly loam, very cobbly loam	GM	A-2, A-4, A-5	0	15-30	40-70	40-65	35-55	25-50	35-45	NP-5
	16-22	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	50-70	40-65	25-60	10-50	35-45	NP-5
	22-49	Gravelly loam, very gravelly loam, very cobbly sandy loam	GM	A-2, A-4, A-5	0	0-30	40-65	35-60	20-55	15-45	35-45	NP-5
	49-60	Extremely stony sandy loam, very cobbly sandy loam, very stony loamy sand	SM, SP-SM	A-1, A-2	0-55	15-30	60-80	55-75	30-55	10-30	15-25	NP-5

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
278: Wintercanyon----	0-9	Very gravelly silt loam	GC-GM, GM, ML	A-2, A-4	0-10	0-15	50-75	45-60	35-60	30-55	20-30	NP-10
	9-18	Very gravelly silt loam, very cobbly loam, extremely cobbly silt loam, very gravelly loam	GC-GM	A-1, A-2, A-4	0-10	0-55	40-60	30-50	25-50	20-45	20-30	5-10
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
279: Snell-----	0-4	Silty clay loam	CL-ML, ML, SC-SM	A-4	0	0	100	90-100	80-100	55-75	25-35	5-10
	4-9	Stony clay loam, very gravelly clay loam	CL	A-6	10-40	10-25	70-95	55-90	55-80	50-75	30-40	10-15
	9-18	Very stony clay loam, cobbly clay, cobbly silty clay, very cobbly silty clay loam, very gravelly clay	CH, CL, GC, SC	A-7	10-55	10-40	70-90	60-85	50-80	45-75	40-55	15-35
	18-24	Extremely stony clay loam, extremely stony silty clay loam, extremely stony clay, very cobbly silty clay, very gravelly clay	GC	A-2, A-7	10-55	10-40	40-55	35-50	30-50	25-45	45-55	25-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
281: Snell-----	0-4	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	30-50	10-30	60-100	50-90	50-90	40-75	25-35	5-10
	4-9	Stony clay loam, very gravelly clay loam	CL	A-6	10-40	10-25	70-95	55-90	55-80	50-75	30-40	10-15
	9-18	Very stony clay loam, cobbly clay, cobbly silty clay, very cobbly silty clay loam, very gravelly clay	CH, CL, GC, SC	A-7	10-55	10-40	70-90	60-85	50-80	45-75	40-55	15-35
	18-24	Extremely stony clay loam, extremely stony silty clay loam, extremely stony clay, very cobbly silty clay, very gravelly clay	GC	A-2, A-7	10-55	10-40	40-55	35-50	30-50	25-45	45-55	25-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
283: Snell-----	0-4	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	30-50	10-30	60-100	50-90	50-90	40-75	25-35	5-10
	4-9	Stony clay loam, very gravelly clay loam	CL	A-6	10-40	10-25	70-95	55-90	55-80	50-75	30-40	10-15
	9-18	Very stony clay loam, cobbly clay, cobbly silty clay, very cobbly silty clay loam, very gravelly clay	CH, CL, GC, SC	A-7	10-55	10-40	70-90	60-85	50-80	45-75	40-55	15-35
	18-24	Extremely stony clay loam, extremely stony silty clay loam, extremely stony clay, very cobbly silty clay, very gravelly clay	GC	A-2, A-7	10-55	10-40	40-55	35-50	30-50	25-45	45-55	25-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
285: Snell-----	0-4	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	30-50	10-30	60-100	50-90	50-90	40-75	25-35	5-10
	4-9	Stony clay loam, very gravelly clay loam	CL	A-6	10-40	10-25	70-95	55-90	55-80	50-75	30-40	10-15
	9-18	Very stony clay loam, cobbly clay, cobbly silty clay, very cobbly silty clay loam, very gravelly clay	CH, CL, GC, SC	A-7	10-55	10-40	70-90	60-85	50-80	45-75	40-55	15-35
	18-24	Extremely stony clay loam, extremely stony silty clay loam, extremely stony clay, very cobbly silty clay, very gravelly clay	GC	A-2, A-7	10-55	10-40	40-55	35-50	30-50	25-45	45-55	25-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
286: Snell-----	0-4	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	30-50	10-30	60-100	50-90	50-90	40-75	25-35	5-10
	4-9	Stony clay loam, very gravelly clay loam	CL	A-6	10-40	10-25	70-95	55-90	55-80	50-75	30-40	10-15
	9-18	Very stony clay loam, cobbly clay, cobbly silty clay, very cobbly silty clay loam, very gravelly clay	CH, CL, GC, SC	A-7	10-55	10-40	70-90	60-85	50-80	45-75	40-55	15-35
	18-24	Extremely stony clay loam, extremely stony silty clay loam, extremely stony clay, very cobbly silty clay, very gravelly clay	GC	A-2, A-7	10-55	10-40	40-55	35-50	30-50	25-45	45-55	25-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
287: Snell-----	0-4	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	30-50	10-30	60-100	50-90	50-90	40-75	25-35	5-10
	4-9	Stony clay loam, very gravelly clay loam	CL	A-6	10-40	10-25	70-95	55-90	55-80	50-75	30-40	10-15
	9-18	Very stony clay loam, cobbly clay, cobbly silty clay, very cobbly silty clay loam, very gravelly clay	CH, CL, GC, SC	A-7	10-55	10-40	70-90	60-85	50-80	45-75	40-55	15-35
	18-24	Extremely stony clay loam, extremely stony silty clay loam, extremely stony clay, very cobbly silty clay, very gravelly clay	GC	A-2, A-7	10-55	10-40	40-55	35-50	30-50	25-45	45-55	25-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

[illegible]

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
288: Imnaha-----	0-5	Gravelly silt loam	GM, ML	A-4	0-10	10-15	65-95	60-85	55-80	40-75	20-25	NP-5
	5-17	Gravelly silt loam, gravelly loam, very gravelly silt loam, very cobbly silt loam	GM, ML	A-2, A-4	0-10	10-30	60-90	50-80	45-75	30-75	20-25	NP-5
	17-21	Very gravelly loam, very gravelly silt loam, very gravelly clay loam, extremely stony loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	21-24	Very gravelly silt loam, very gravelly clay loam, extremely stony loam, very gravelly loam, very cobbly loam	GC, GC-GM	A-1, A-2, A-4	0-30	15-30	50-70	45-60	40-60	20-50	25-35	5-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
289: Snow-----	0-18	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	30-40	5-10
	18-36	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	30-40	5-10
	36-60	Silt loam	ML	A-4	0	0	90-100	85-100	75-100	60-90	30-40	5-10



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
290: Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
291: Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
292: Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
293: Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
294: Sopher-----	0-2	Stony loam	GM, ML, SM	A-4	15-30	0-10	70-90	70-90	60-85	40-70	20-35	NP-10
	2-8	Gravelly loam	GM, ML, SM	A-4	0-10	0-15	70-90	65-75	55-70	40-55	20-35	NP-10
	8-18	Gravelly clay loam, cobbly loam	CL, CL-ML, GC-GM	A-4, A-6	0	0-40	65-95	60-90	55-85	40-80	25-40	5-15
	18-24	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	24-44	Very gravelly clay, very cobbly silty clay loam, very cobbly silty clay	GC, SC, CH, CL	A-2, A-6, A-7	0	10-55	50-80	45-75	40-70	30-65	35-55	15-30
	44-54	Unweathered bedrock			---	---	---	---	---	---	---	---
Gwinly-----	0-4	Very cobbly silt loam	CL, CL-ML	A-4	5-15	25-50	75-95	65-90	60-80	60-80	25-30	5-10
	4-10	Very cobbly silty clay loam, very cobbly silt loam	CL	A-6	0-10	25-50	75-95	65-90	60-80	50-75	30-39	10-17
	10-17	Very cobbly clay, extremely cobbly clay	CL, GC, SC	A-7	0-10	45-65	50-80	45-80	45-80	40-75	40-50	25-30
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
295:												
Sturgill-----	0-8	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	25-35	NP-10
	8-23	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
	23-38	Silt loam, silty clay loam	ML	A-4	0	0	100	100	95-100	75-95	25-35	NP-10
	38-44	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
	44-60	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
296:												
Sturgill-----	0-8	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	25-35	NP-10
	8-23	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
	23-38	Silt loam, silty clay loam	ML	A-4	0	0	100	100	95-100	75-95	25-35	NP-10
	38-44	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
	44-60	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-20
Eggleston-----	0-3	Gravelly loam	SM, GC-GM, GM, SC-SM	A-4	0	0-5	60-80	55-75	50-65	40-50	20-25	NP-5
	3-10	Very gravelly sandy loam	GC-GM, GM, GP-GM	A-1	0	0-25	35-55	30-50	20-35	10-20	15-20	NP-5
	10-17	Extremely gravelly loamy sand, extremely gravelly sand	GP, GP-GM	A-1	0-15	30-45	20-40	15-35	10-20	0-5	0-10	NP
	17-30	Extremely gravelly loamy sand, extremely gravelly sand	GP, GP-GM	A-1	0-15	30-45	20-40	15-35	10-20	0-5	0-10	NP
	30-60	Extremely gravelly loamy sand, extremely gravelly sand	GP, GP-GM	A-1	0-15	30-45	20-40	15-35	10-20	0-5	0-10	NP

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
297: Sweitberg-----	0-18	Silt loam	CL-ML	A-4	0	0-5	95-100	90-100	85-100	80-90	20-30	5-10
	18-20	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-55	15-30
	20-29	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-55	15-30
	29-35	Very cobbly clay, gravelly silty clay, very gravelly clay	CH, CL, GC	A-7	0	10-40	55-90	45-85	45-65	40-60	45-55	20-30
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
298: Sweitberg-----	0-18	Silt loam	CL-ML	A-4	0	0-5	95-100	90-100	85-100	80-90	20-30	5-10
	18-20	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-55	15-30
	20-29	Clay, silty clay, silty clay loam	CH, CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-55	15-30
	29-35	Very cobbly clay, gravelly silty clay, very gravelly clay	CH, CL, GC	A-7	0	10-40	55-90	45-85	45-65	40-60	45-55	20-30
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
299: Sweiting-----	0-8	Silt loam	CL	A-6	0	0-15	95-100	80-100	70-100	55-90	25-35	10-15
	8-13	Silty clay loam, silty clay, clay	CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-50	20-30
	13-22	Silty clay loam, silty clay, clay	CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-50	20-30
	22-32	Very cobbly silty clay loam, very gravelly clay loam, gravelly clay	CH, CL, GC	A-7	0	0-45	65-85	50-80	45-75	35-70	40-55	15-30
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
302: Sweiting-----	0-8	Silt loam	CL	A-6	0	0-15	95-100	80-100	70-100	55-90	25-35	10-15
	8-13	Silty clay loam, silty clay, clay	CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-50	20-30
	13-22	Silty clay loam, silty clay, clay	CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-50	20-30
	22-32	Very cobbly silty clay loam, very gravelly clay loam, gravelly clay	CH, CL, GC	A-7	0	0-45	65-85	50-80	45-75	35-70	40-55	15-30
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
303: Sweiting-----	0-8	Silt loam	CL	A-6	0	0-15	95-100	80-100	70-100	55-90	25-35	10-15
	8-13	Silty clay loam, silty clay, clay	CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-50	20-30
	13-22	Silty clay loam, silty clay, clay	CL	A-7	0	0-5	90-100	85-100	85-100	75-90	40-50	20-30
	22-32	Very cobbly silty clay loam, very gravelly clay loam, gravelly clay	CH, CL, GC	A-7	0	0-45	65-85	50-80	45-75	35-70	40-55	15-30
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
305: Syrupcreek-----	0-3	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	3-14	Silt loam, very fine sandy loam, loam	ML	A-5	0	0	90-100	85-100	70-85	50-75	40-50	NP-5
	14-22	Very cobbly loam, very cobbly silt loam, very gravelly silt loam	CL-ML, GC-GM	A-2, A-4	0-30	25-45	45-75	35-70	30-65	20-55	25-30	5-10
	22-28	Extremely cobbly clay loam, very cobbly loam, extremely cobbly loam, very stony clay loam	GC, GC-GM	A-2, A-4, A-6	0-30	25-45	45-75	35-70	30-65	20-50	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone-----	0-3	Very stony silt loam	GC-GM, GM, SC-SM	A-4	15-30	25-40	55-80	40-75	35-65	30-60	25-35	5-10
	3-6	Very cobbly silt loam, very stony loam	GC-GM, GM	A-2, A-4	15-25	25-45	50-75	40-65	35-65	25-60	25-35	5-10
	6-12	Very cobbly silty clay loam, very cobbly silt loam, very cobbly clay loam, very cobbly loam	GC-GM, GM, SC-SM	A-2, A-4	10-15	30-45	50-75	45-65	40-60	30-60	30-40	5-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
306: Syrupcreek-----	0-3	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	3-14	Silt loam, very fine sandy loam, loam	ML	A-5	0	0	90-100	85-100	70-85	50-75	40-50	NP-5
	14-22	Very cobbly loam, very cobbly silt loam, very gravelly silt loam	CL-ML, GC-GM	A-2, A-4	0-30	25-45	45-75	35-70	30-65	20-55	25-30	5-10
	22-28	Extremely cobbly clay loam, very cobbly loam, extremely cobbly loam, very stony clay loam	GC, GC-GM	A-2, A-4, A-6	0-30	25-45	45-75	35-70	30-65	20-50	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
Lowerbluff-----	0-6	Silt loam	ML	A-4	0	0-10	80-100	75-100	45-65	40-60	25-40	NP-5
	6-15	Gravelly fine sandy loam, gravelly silt loam, silt loam	ML, SM	A-4	0	0-15	70-100	65-100	45-85	35-70	25-40	NP-5
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
307: Syrupcreek-----	0-3	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	3-14	Silt loam, very fine sandy loam, loam	ML	A-5	0	0	90-100	85-100	70-85	50-75	40-50	NP-5
	14-22	Very cobbly loam, very cobbly silt loam, very gravelly silt loam	CL-ML, GC-GM	A-2, A-4	0-30	25-45	45-75	35-70	30-65	20-55	25-30	5-10
	22-28	Extremely cobbly clay loam, very cobbly loam, extremely cobbly loam, very stony clay loam	GC, GC-GM	A-2, A-4, A-6	0-30	25-45	45-75	35-70	30-65	20-50	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
307: Tamara-----	0-4	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	4-15	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	15-30	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	30-51	Gravelly loam, clay loam, gravelly clay loam, silty clay loam	CL	A-6	0	0-15	70-95	65-90	60-85	55-80	30-40	10-15
	51-60	Clay loam, gravelly clay loam, loam, silty clay loam	CL	A-6	0	0-10	65-95	60-90	55-85	50-80	35-40	10-15
308: Syrupcreek-----	0-3	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	3-14	Silt loam, very fine sandy loam, loam	ML	A-5	0	0	90-100	85-100	70-85	50-75	40-50	NP-5
	14-22	Very cobbly loam, very cobbly silt loam, very gravelly silt loam	CL-ML, GC-GM	A-2, A-4	0-30	25-45	45-75	35-70	30-65	20-55	25-30	5-10
	22-28	Extremely cobbly clay loam, very cobbly loam, extremely cobbly loam, very stony clay loam	GC, GC-GM	A-2, A-4, A-6	0-30	25-45	45-75	35-70	30-65	20-50	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
Tamara-----	0-4	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	4-15	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	15-30	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	30-51	Gravelly loam, clay loam, gravelly clay loam, silty clay loam	CL	A-6	0	0-15	70-95	65-90	60-85	55-80	30-40	10-15
	51-60	Clay loam, gravelly clay loam, loam, silty clay loam	CL	A-6	0	0-10	65-95	60-90	55-85	50-80	35-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
309: Tamara-----	0-4	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	4-15	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	15-30	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	30-51	Gravelly loam, clay loam, gravelly clay loam, silty clay loam	CL	A-6	0	0-15	70-95	65-90	60-85	55-80	30-40	10-15
	51-60	Clay loam, gravelly clay loam, loam, silty clay loam	CL	A-6	0	0-10	65-95	60-90	55-85	50-80	35-40	10-15
Sherod-----	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	5-8	Silt loam, silty clay loam	CL	A-6, A-7	0	0	95-100	90-100	80-100	65-95	35-45	15-20
	8-17	Gravelly silt loam, cobbly silty clay loam, very cobbly silty clay loam	CL, GC	A-6, A-7	0	0-40	70-90	65-85	60-85	45-80	35-45	15-20
	17-19	Very cobbly clay, very gravelly clay	CH, CL, GC	A-7	0	25-50	60-80	55-75	50-75	40-70	45-55	20-30
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
310: Tamara-----	0-4	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	4-15	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	15-30	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	30-40	NP-5
	30-51	Gravelly loam, clay loam, gravelly clay loam, silty clay loam	CL	A-6	0	0-15	70-95	65-90	60-85	55-80	30-40	10-15
	51-60	Clay loam, gravelly clay loam, loam, silty clay loam	CL	A-6	0	0-10	65-95	60-90	55-85	50-80	35-40	10-15

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
310: Syrupcreek-----	0-3	Silt loam	ML	A-5	0	0	90-100	85-100	75-95	70-85	40-50	NP-5
	3-14	Silt loam, very fine sandy loam, loam	ML	A-5	0	0	90-100	85-100	70-85	50-75	40-50	NP-5
	14-22	Very cobbly loam, very cobbly silt loam, very gravelly silt loam	CL-ML, GC-GM	A-2, A-4	0-30	25-45	45-75	35-70	30-65	20-55	25-30	5-10
	22-28	Extremely cobbly clay loam, very cobbly loam, extremely cobbly loam, very stony clay loam	GC, GC-GM	A-2, A-4, A-6	0-30	25-45	45-75	35-70	30-65	20-50	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
311: Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
311: Linecreek-----	0-9	Extremely cobble loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobbly loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobble sandy loam	GC, GC-GM, CL-ML	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobble clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
312: Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Lowerbluff-----	0-6	Silt loam	ML	A-4	0	0-10	80-100	75-100	45-65	40-60	25-40	NP-5
	6-15	Gravelly fine sandy loam, gravelly silt loam, silt loam	ML, SM	A-4	0	0-15	70-100	65-100	45-85	35-70	25-40	NP-5
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
313: Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Olot-----	0-19	Silt loam	ML	A-4	0	0-10	100	100	90-100	70-90	30-40	NP-5
	19-22	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	55-90	50-85	45-85	30-80	35-40	10-15
	22-36	Extremely cobbly silty clay loam, very cobbly silt loam	GM	A-2, A-6	0-10	25-65	45-90	40-85	35-85	30-80	35-40	10-15
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
313: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
314: Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---





Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
316: Tannahill-----	0-4	Very cobbly loam	GC-GM, SM	A-4	10-15	15-40	60-70	50-65	40-55	30-45	25-35	5-10
	4-10	Very cobbly loam, very stony loam	GC-GM, SM	A-2, A-4	10-25	15-25	60-80	50-70	45-65	30-50	25-35	5-10
	10-16	Extremely stony clay loam, extremely stony loam, very cobbly loam	GC, GM	A-2, A-6	15-30	15-40	40-80	30-70	30-65	25-50	30-41	10-15
	16-29	Extremely stony loam, extremely stony clay loam, extremely cobbly clay loam	GC, GM	A-2, A-6	15-30	15-40	40-80	30-70	30-65	25-50	30-41	10-15
	29-41	Very stony silt loam, extremely stony silt loam, extremely stony loam	GC-GM, GM	A-2, A-4	30-45	15-30	50-85	40-60	35-60	25-55	25-35	5-10
	41-48	Very stony silt loam, extremely stony silt loam, extremely stony loam	GC-GM, GM	A-2, A-4	30-45	15-30	50-85	40-60	35-60	25-55	25-35	5-10
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
316: Schuelke-----	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0-15	100	100	90-100	70-90	25-35	5-15
	5-12	Very cobbly silty clay loam, very cobbly clay loam	GM, ML, SM	A-2, A-6, A-7	0	30-45	50-75	45-70	40-70	30-65	35-45	10-15
	12-22	Very cobbly clay loam, extremely cobbly loam, very cobbly loam	CL, GC, SC	A-2, A-6	0	30-60	50-85	40-80	30-70	20-55	30-40	10-15
	22-33	Very cobbly clay loam, extremely cobbly loam, very cobbly loam	CL, GC, SC	A-2, A-6	0	30-60	50-85	40-85	30-70	20-55	30-40	10-15
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---
Lickskillet----	0-7	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-4	10-15	30-45	60-90	55-80	50-75	40-60	20-30	NP-10
	7-19	Very cobbly sandy loam, extremely cobbly loam	GC, GC-GM, SC	A-2, A-4, A-6	10-20	30-50	45-75	40-75	35-70	20-55	25-35	5-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
318: Threebuck-----	0-4	Loam	ML	A-4, A-5	0	0-10	90-100	85-100	70-95	50-75	35-45	NP-5
	4-14	Cobbly loam, gravelly silt loam, gravelly loam	ML	A-4, A-5	0	0-30	80-100	70-100	60-100	40-90	35-45	NP-5
	14-25	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	25-36	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	36-47	Gravelly clay, very gravelly clay, very cobbly silty clay loam	CH, CL, GC	A-2, A-7	0-15	15-50	50-75	40-65	35-65	30-60	40-55	15-30
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
319: Threebuck-----	0-4	Loam	ML	A-4, A-5	0	0-10	90-100	85-100	70-95	50-75	35-45	NP-5
	4-14	Cobbly loam, gravelly silt loam, gravelly loam	ML	A-4, A-5	0	0-30	80-100	70-100	60-100	40-90	35-45	NP-5
	14-25	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	25-36	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	36-47	Gravelly clay, very gravelly clay, very cobbly silty clay loam	CH, CL, GC	A-2, A-7	0-15	15-50	50-75	40-65	35-65	30-60	40-55	15-30
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
319: Linecreek-----	0-9	Extremely cobble loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobble loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobble sandy loam	CL-ML, GC, GC-GM	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobble clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobble clay, very cobble clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
320: Threebuck-----	0-4	Loam	ML	A-4, A-5	0	0-10	90-100	85-100	70-95	50-75	35-45	NP-5
	4-14	Cobbly loam, gravelly silt loam, gravelly loam	ML	A-4, A-5	0	0-30	80-100	70-100	60-100	40-90	35-45	NP-5
	14-25	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	25-36	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	36-47	Gravelly clay, very gravelly clay, very cobbly silty clay loam	CH, CL, GC	A-2, A-7	0-15	15-50	50-75	40-65	35-65	30-60	40-55	15-30
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

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Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
322: Threebuck-----	0-4	Loam	ML	A-4, A-5	0	0-10	90-100	85-100	70-95	50-75	35-45	NP-5
	4-14	Cobbly loam, gravelly silt loam, gravelly loam	ML	A-4, A-5	0	0-30	80-100	70-100	60-100	40-90	35-45	NP-5
	14-25	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	25-36	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	36-47	Gravelly clay, very gravelly clay, very cobbly silty clay loam	CH, CL, GC	A-2, A-7	0-15	15-50	50-75	40-65	35-65	30-60	40-55	15-30
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
322: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
323: Threebuck-----	0-4	Loam	ML	A-4, A-5	0	0-10	90-100	85-100	70-95	50-75	35-45	NP-5
	4-14	Cobbly loam, gravelly silt loam, gravelly loam	ML	A-4, A-5	0	0-30	80-100	70-100	60-100	40-90	35-45	NP-5
	14-25	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	25-36	Very stony clay, very gravelly clay, very cobbly silty clay loam	CL, GC, GM, ML	A-2, A-6, A-7	0-45	25-55	45-80	35-70	30-70	30-65	35-50	10-25
	36-47	Gravelly clay, very gravelly clay, very cobbly silty clay loam	CH, CL, GC	A-2, A-7	0-15	15-50	50-75	40-65	35-65	30-60	40-55	15-30
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
323: Tamarackcanyon--	0-4	Loam	ML	A-4, A-5	0	0-15	90-100	85-100	65-95	50-75	35-45	NP-5
	4-9	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	9-13	Clay loam, gravelly clay loam, loam	GM, ML	A-6	0	0-15	65-100	55-100	50-95	40-85	35-40	10-15
	13-25	Very cobbly clay, very cobbly clay loam, cobbly silty clay loam	CH, CL, GC	A-7	0-15	15-45	55-90	50-80	45-80	35-75	40-55	15-30
	25-38	Extremely stony clay, very stony silty clay, very cobbly clay, very cobbly silty clay loam, very stony clay loam	CH, CL, GC	A-7	25-45	15-45	50-70	45-60	40-60	35-55	40-55	15-30
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
323: Linecreek-----	0-9	Extremely cobble loam	GM	A-4	0-25	40-50	30-55	25-50	25-45	20-45	15-20	NP-5
	9-22	Extremely gravelly silt loam, extremely gravelly fine sandy loam, very cobble loam	GM	A-1, A-2, A-4	0-10	25-40	20-70	15-65	15-60	10-60	20-25	NP-5
	22-35	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	35-50	Extremely gravelly fine sandy loam, extremely gravelly silt loam, extremely cobble fine sandy loam	ML, GM	A-1, A-2, A-4	10-25	15-50	35-75	30-70	30-65	25-60	25-35	NP-5
	50-61	Extremely gravelly loam, extremely gravelly sandy loam, extremely cobble sandy loam	GC-GM, GC, CL-ML	A-1, A-2, A-4	10-25	25-50	35-75	30-70	25-65	20-60	20-25	5-10
324: Tippett-----	0-10	Silty clay loam	CL	A-6	0	0	95-100	95-100	90-100	70-95	30-40	10-20
	10-14	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
	14-16	Silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-25	85-100	75-100	65-100	45-90	25-35	5-15
	16-30	Clay	CL	A-7	0	0	100	100	90-100	75-95	40-50	20-25
	30-51	Clay	CH	A-7	0	0	95-100	90-100	80-95	65-85	50-60	25-35
	51-60	Gravelly clay	CH	A-7	0	0-15	70-80	65-75	65-75	60-70	50-60	25-35



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
324: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
325: Tippett-----	0-10	Silty clay loam	CL	A-6	0	0	95-100	95-100	90-100	70-95	30-40	10-20
	10-14	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
	14-16	Silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-25	85-100	75-100	65-100	45-90	25-35	5-15
	16-30	Clay	CL	A-7	0	0	100	100	90-100	75-95	40-50	20-25
	30-51	Clay	CH	A-7	0	0	95-100	90-100	80-95	65-85	50-60	25-35
	51-60	Gravelly clay	CH	A-7	0	0-15	70-80	65-75	65-75	60-70	50-60	25-35
Zumwalt-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	7-9	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	9-21	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	21-37	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	37-47	Unweathered bedrock			---	---	---	---	---	---	---	---
326: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
327: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
328: Tolo, fan-----	0-26	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	26-37	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	37-60	Cobbly silty clay loam, very cobbly silt loam, cobbly silt loam	CL	A-6	0	15-30	80-100	75-100	75-100	55-95	30-40	10-20
329: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
329: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
330: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
330: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
331: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
331: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
332: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
332: Getaway-----	0-6	Cobbly silt loam	CL	A-6	0	5-40	70-95	65-90	60-80	50-70	25-35	10-15
	6-13	Cobbly silt loam, very cobbly silt loam, very gravelly silt loam	CL, GC	A-6	0-10	0-40	55-95	50-90	45-75	40-65	25-35	10-15
	13-34	Very cobbly silty clay loam, very cobbly clay loam, extremely cobbly silty clay loam	CL, GC	A-6	0-15	25-40	35-75	30-70	30-60	25-55	30-40	15-20
	34-48	Very cobbly silty clay loam, very cobbly clay loam, extremely gravelly clay loam, extremely cobbly silty clay loam	GC	A-2, A-7	0-15	35-60	35-75	20-70	20-50	20-40	40-50	15-25
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
333: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobbly silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
333: Olot-----	0-19	Silt loam	ML	A-4	0	0-10	100	100	90-100	70-90	30-40	NP-5
	19-22	Extremely cobble silty clay loam, very cobble silt loam	GM	A-2, A-6	0-10	25-65	55-90	50-85	45-85	30-80	35-40	10-15
	22-36	Extremely cobble silty clay loam, very cobble silt loam	GM	A-2, A-6	0-10	25-65	45-90	40-85	35-85	30-80	35-40	10-15
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
334: Tolo-----	0-20	Silt loam	MH	A-5	0	0	100	100	95-100	85-90	50-60	NP-5
	20-33	Silt loam, silty clay loam, cobble silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
	33-60	Silt loam, silty clay loam, cobble silt loam	CL	A-6	0	0-30	90-100	85-100	75-100	55-95	30-40	10-20
Olot-----	0-19	Silt loam	ML	A-4	0	0-10	100	100	90-100	70-90	30-40	NP-5
	19-22	Extremely cobble silty clay loam, very cobble silt loam	GM	A-2, A-6	0-10	25-65	55-90	50-85	45-85	30-80	35-40	10-15
	22-36	Extremely cobble silty clay loam, very cobble silt loam	GM	A-2, A-6	0-10	25-65	45-90	40-85	35-85	30-80	35-40	10-15
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
335: Topper-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	11-25	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	25-35	Silty clay loam, silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	75-95	30-40	5-15
	35-60	Silt loam, loam	ML	A-4	0	0-10	90-100	80-100	70-100	50-90	25-35	NP-10

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
336: Topper-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	11-25	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	25-35	Silty clay loam, silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	75-95	30-40	5-15
	35-60	Silt loam, loam	ML	A-4	0	0-10	90-100	80-100	70-100	50-90	25-35	NP-10
337: Topper-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	11-25	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	25-35	Silty clay loam, silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	75-95	30-40	5-15
	35-60	Silt loam, loam	ML	A-4	0	0-10	90-100	80-100	70-100	50-90	25-35	NP-10
338: Topper-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	11-25	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	25-35	NP-10
	25-35	Silty clay loam, silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	75-95	30-40	5-15
	35-60	Silt loam, loam	ML	A-4	0	0-10	90-100	80-100	70-100	50-90	25-35	NP-10
339: Troutmeadows----	0-3	Silt loam	ML	A-4	0	0	90-100	80-100	70-100	55-90	35-40	NP-5
	3-16	Silt loam	ML	A-4	0-10	0-10	90-100	80-100	75-100	60-90	35-40	NP-5
	16-30	Very cobbly silt loam, extremely gravelly loam, very cobbly loam	GC-GM	A-2, A-4	0-15	25-65	40-60	25-55	20-50	15-45	20-25	5-10
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Crawfish-----	0-3	Very cobbly loam	GM	A-2, A-4	0-10	40-50	65-80	50-75	40-55	30-45	20-25	NP-5
	3-9	Extremely cobbly loam, extremely cobbly silt loam, extremely gravelly loam	GP-GC, GC-GM	A-2	0-10	40-65	20-50	15-45	15-40	10-35	25-30	5-10
	9-19	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
340: Tuckerdowns-----	0-3	Gravelly loam	CL-ML, SC-SM	A-4	0	0	60-80	55-75	50-70	40-65	20-30	5-10
	3-10	Gravelly loam	CL-ML, SC-SM	A-4	0	0	60-80	55-75	50-70	40-65	20-30	5-10
	10-17	Gravelly loam, gravelly silt loam	CL-ML, ML, SC-SM, SM	A-4	0	0	55-80	50-75	40-70	35-60	25-35	5-10
	17-33	Very gravelly sandy clay loam, very gravelly loam	GC-GM, GP-GM	A-1, A-2	0	0	30-55	25-50	20-45	10-30	25-35	5-10
	33-60	Extremely gravelly sandy loam, extremely gravelly loam, very gravelly sandy loam	GM, GP-GM	A-1	0	0-5	20-55	15-50	10-40	5-25	10-20	NP-5
341: Tuckerdowns-----	0-3	Gravelly loam	CL-ML, SC-SM	A-4	0	0	60-80	55-75	50-70	40-65	20-30	5-10
	3-10	Gravelly loam	CL-ML, SC-SM	A-4	0	0	60-80	55-75	50-70	40-65	20-30	5-10
	10-17	Gravelly loam, gravelly silt loam	CL-ML, ML, SC-SM, SM	A-4	0	0	55-80	50-75	40-70	35-60	25-35	5-10
	17-33	Very gravelly sandy clay loam, very gravelly loam	GC-GM, GP-GM	A-1, A-2	0	0	30-55	25-50	20-45	10-30	25-35	5-10
	33-60	Extremely gravelly sandy loam, extremely gravelly loam, very gravelly sandy loam	GM, GP-GM	A-1	0	0-5	20-55	15-50	10-40	5-25	10-20	NP-5
342: Tuckerdowns-----	0-3	Gravelly loam	CL-ML, SC-SM	A-4	0	0	60-80	55-75	50-70	40-65	20-30	5-10
	3-10	Gravelly loam	CL-ML, SC-SM	A-4	0	0	60-80	55-75	50-70	40-65	20-30	5-10
	10-17	Gravelly loam, gravelly silt loam	CL-ML, ML, SC-SM, SM	A-4	0	0	55-80	50-75	40-70	35-60	25-35	5-10
	17-33	Very gravelly sandy clay loam, very gravelly loam	GC-GM, GP-GM	A-1, A-2	0	0	30-55	25-50	20-45	10-30	25-35	5-10
	33-60	Extremely gravelly sandy loam, extremely gravelly loam, very gravelly sandy loam	GM, GP-GM	A-1	0	0-5	20-55	15-50	10-40	5-25	10-20	NP-5

Table 16.--Engineering Properties--Continued

[illegible]



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
344: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
345: Veazie-----	0-19	Loam	CL, CL-ML, ML	A-4	0	0	90-100	80-100	70-95	50-75	20-30	NP-10
	19-28	Loam, silt loam, gravelly loam	ML	A-4	0	0-10	85-100	75-100	70-95	50-75	25-35	NP-10
	28-34	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	10-30	35-65	25-55	15-45	5-20	0-15	NP
	34-60	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	10-30	35-65	25-55	15-45	5-20	0-15	NP
346: Voats-----	0-15	Fine sandy loam	ML, SM	A-4	0	0	90-100	80-100	60-85	35-55	15-20	NP-5
	15-60	Stratified very cobble sand to very gravelly loamy sand	GP-GM, SP-SM	A-1	0-15	0-45	40-55	35-50	15-35	5-10	0-15	NP
Veazie-----	0-19	Loam	CL, CL-ML, ML	A-4	0	0	90-100	80-100	70-95	50-75	20-30	NP-10
	19-28	Loam, silt loam, gravelly loam	ML	A-4	0	0-10	85-100	75-100	70-95	50-75	25-35	NP-10
	28-34	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	10-30	35-65	25-55	15-45	5-20	0-15	NP
	34-60	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand	GM, GP-GM, SM, SP-SM	A-1	0	10-30	35-65	25-55	15-45	5-20	0-15	NP

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
347: Volstead-----	0-9	Silt loam	ML	A-4	0	0	95-100	80-100	80-100	70-90	15-20	NP-5
	9-13	Silt loam, loam	ML	A-4	0	0	90-100	80-100	80-100	70-90	15-20	NP-5
	13-23	Silt loam, clay loam, gravelly silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	23-38	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	38-48	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
Quirk-----	0-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	70-90	15-20	NP-5
	12-21	Silt loam, clay loam, gravelly silt loam, loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	21-33	Clay, gravelly clay	CL, CH	A-7	0	0-10	75-100	70-100	70-100	65-95	45-55	20-30
	33-37	Very cobbly clay, cobbly clay, gravelly clay	CH, CL	A-7	0	0-45	60-100	55-100	50-100	50-95	45-55	20-30
	37-47	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker-----	0-2	Extremely cobbly silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobbly silt loam, extremely cobbly loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
348: Volstead-----	0-9	Silt loam	ML	A-4	0	0	95-100	80-100	80-100	70-90	15-20	NP-5
	9-13	Silt loam, loam	ML	A-4	0	0	90-100	80-100	80-100	70-90	15-20	NP-5
	13-23	Silt loam, clay loam, gravelly silt loam, loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	23-38	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	38-48	Clay loam, gravelly clay loam, cobbly clay, gravelly clay	CL, ML	A-7	0	0-30	75-95	70-90	65-90	50-80	40-50	15-20
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---
Quirk-----	0-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	70-90	15-20	NP-5
	12-21	Silt loam, clay loam, gravelly silt loam, loam	CL, CL-ML	A-4, A-6	0	0-10	75-100	70-100	70-100	55-90	25-35	5-15
	21-33	Clay, gravelly clay	CL, CH	A-7	0	0-10	75-100	70-100	70-100	65-95	45-55	20-30
	33-37	Very cobbly clay, cobbly clay, gravelly clay	CH, CL	A-7	0	0-45	60-100	55-100	50-100	50-95	45-55	20-30
	37-47	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker-----	0-2	Extremely cobbly silt loam	GM	A-4	0-5	40-60	55-65	45-55	40-50	35-45	20-30	NP-5
	2-7	Very gravelly loam, very cobbly silt loam, extremely cobbly loam	GC-GM, GM	A-2	0-5	0-45	50-60	40-55	35-45	25-35	20-30	NP-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
352: Rockly-----	0-3	Very cobbly loam	GC-GM, SC-SM	A-4	0-15	30-45	75-85	70-80	60-75	40-60	25-35	5-10
	3-7	Extremely cobbly loam, very cobbly clay loam	SC, SC-SM, GC	A-2, A-4, A-6	0-10	30-50	40-75	35-70	35-70	25-55	25-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
353: Water-----	---	---	---	---	---	---	---	---	---	---	---	---
354: Wilkins-----	0-19	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	19-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	25-52	Silty clay, clay	CH, CL	A-7	0	0	90-100	85-100	80-100	75-95	45-65	25-45
	52-70	Loam, silty clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	60-100	60-100	60-95	25-40	5-15
	70-76	Loam, silty clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0	70-100	60-100	60-100	60-95	25-40	5-15
355: Wilkins-----	0-19	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	19-25	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	25-35	5-15
	25-52	Silty clay, clay	CH, CL	A-7	0	0	90-100	85-100	80-100	75-95	45-65	25-45
	52-70	Loam, silty clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	60-100	60-100	60-95	25-40	5-15
	70-76	Loam, silty clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0	70-100	60-100	60-100	60-95	25-40	5-15
Feaginranch----	0-13	Silty clay loam	CL, ML	A-6	0	0	100	100	90-100	80-100	35-40	10-15
	13-20	Silty clay, silty clay loam	CL	A-7	0	0	100	100	95-100	85-95	40-50	15-25
	20-24	Silty clay loam	CL, ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	24-37	Silty clay, gravelly clay loam, clay	CL	A-7	0	0	70-100	55-90	50-90	50-90	40-50	15-25
	37-61	Silty clay, gravelly clay loam, clay	CL	A-7	0	0	70-100	55-90	50-90	50-90	40-50	15-25



Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
356: Wolot-----	0-21	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-5
	21-48	Silt loam, silty clay loam	ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	48-60	Silt loam, silty clay loam	ML	A-6	0	0	95-100	90-100	80-100	60-95	35-40	10-15
357: Zumwalt-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	7-9	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	9-21	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	21-37	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	37-47	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
358: Zumwalt-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	7-9	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	9-21	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	21-37	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	37-47	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 16.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
358: Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
359: Zumwalt-----	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	7-9	Silt loam	ML	A-4	0	0	95-100	90-100	90-100	75-90	30-40	5-10
	9-21	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	21-37	Silty clay, clay	CH	A-7	0	0	90-100	85-100	80-100	75-90	55-65	30-40
	37-47	Unweathered bedrock			---	---	---	---	---	---	---	---
Harlow-----	0-4	Very stony loam	GC-GM, GM	A-4	15-25	10-25	55-75	50-70	40-65	35-50	25-35	5-10
	4-8	Very cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC, GM	A-2, A-6	0-10	25-40	40-65	35-55	30-50	25-40	35-40	10-15
	8-16	Extremely cobbly clay, very cobbly clay	GC	A-2, A-7	0-10	40-55	25-55	20-50	20-45	20-40	40-50	20-30
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
1: Akerite-----	0-12	5-15	0.70-0.85	2-6	0.30-0.35	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	12-30	10-20	0.90-1.10	2-6	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43			
	30-36	25-35	1.30-1.50	0.2-0.6	0.14-0.18	3.0-5.9	0.5-1.0	.32	.32			
	36-60	30-45	1.30-1.50	0.06-0.2	0.14-0.18	3.0-5.9	0.5-1.0	.32	.32			
2: Akerite-----	0-12	5-15	0.70-0.85	2-6	0.30-0.35	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	12-30	10-20	0.90-1.10	2-6	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43			
	30-36	25-35	1.30-1.50	0.2-0.6	0.14-0.18	3.0-5.9	0.5-1.0	.32	.32			
	36-60	30-45	1.30-1.50	0.06-0.2	0.14-0.18	3.0-5.9	0.5-1.0	.32	.32			
3: Albee-----	0-14	15-25	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.37	.37	2	5	56
	14-34	15-25	1.20-1.30	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.43	.43			
	34-38	15-25	1.30-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.43	.43			
	38-48	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
4: Albee-----	0-14	15-25	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.37	.37	2	5	56
	14-34	15-25	1.20-1.30	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.43	.43			
	34-38	15-25	1.30-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.43	.43			
	38-48	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
5: Analulu-----	0-5	5-15	0.85-0.95	2-6	0.05-0.10	0.0-2.9	1.0-4.0	.15	.28	2	2	134
	5-21	8-15	0.85-1.00	0.6-2	0.04-0.08	0.0-2.9	0.5-2.0	.15	.37			
	21-31	8-15	1.35-1.50	0.6-2	0.03-0.08	0.0-2.9	0.0-0.5	.10	.37			
	31-41	---	---	---	---	---	---	---	---			
Slicklog-----	0-6	5-15	0.85-1.00	2-6	0.21-0.27	0.0-2.9	3.0-5.0	.20	.37	5	3	86
	6-16	5-15	0.85-1.00	2-6	0.14-0.19	0.0-2.9	2.0-4.0	.15	.28			
	16-22	10-18	0.85-1.00	0.6-2	0.06-0.19	0.0-2.9	1.0-2.0	.15	.28			
	22-49	10-18	0.85-1.00	0.6-2	0.06-0.13	0.0-2.9	0.5-1.0	.15	.28			
	49-60	5-15	1.35-1.60	2-20	0.03-0.08	0.0-2.9	0.0-0.5	.05	.20			
Bluecanyon-----	0-5	10-18	1.20-1.40	0.6-2	0.05-0.11	0.0-2.9	2.0-4.0	.15	.37	1	7	38
	5-13	10-18	1.20-1.40	0.6-2	0.05-0.11	0.0-2.9	1.0-3.0	.10	.37			
	13-17	10-18	1.20-1.40	0.6-2	0.03-0.09	0.0-2.9	1.0-2.0	.10	.37			
	17-27	---	---	---	---	---	---	---	---			
6: Analulu-----	0-5	5-15	0.85-0.95	2-6	0.05-0.10	0.0-2.9	1.0-4.0	.15	.28	2	2	134
	5-21	8-15	0.85-1.00	0.6-2	0.04-0.08	0.0-2.9	0.5-2.0	.15	.37			
	21-31	8-15	1.35-1.50	0.6-2	0.03-0.08	0.0-2.9	0.0-0.5	.10	.37			
	31-41	---	---	---	---	---	---	---	---			
Slicklog-----	0-6	5-15	0.85-1.00	2-6	0.21-0.27	0.0-2.9	3.0-5.0	.20	.37	5	3	86
	6-16	5-15	0.85-1.00	2-6	0.14-0.19	0.0-2.9	2.0-4.0	.15	.28			
	16-22	10-18	0.85-1.00	0.6-2	0.06-0.19	0.0-2.9	1.0-2.0	.15	.28			
	22-49	10-18	0.85-1.00	0.6-2	0.06-0.13	0.0-2.9	0.5-1.0	.15	.28			
	49-60	5-15	1.35-1.60	2-20	0.03-0.08	0.0-2.9	0.0-0.5	.05	.20			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
7: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
8: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
9: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
10: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
Fivebit-----	0-4	10-20	1.40-1.60	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.10	1	5	56
	4-9	18-25	1.35-1.55	0.2-0.6	0.06-0.11	0.0-2.9	1.0-3.0	.28	.37			
	9-15	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	15-19	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
11: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55	</		



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
17: Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
18: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Clearline-----	0-4	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-5.0	.15	.17	3	6	48
	4-16	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-3.0	.20	.28			
	16-26	5-15	0.85-1.00	2-6	0.11-0.24	1.0-3.0	1.0-3.0	.28	.37			
	26-36	5-15	1.00-1.20	2-6	0.06-0.15	1.0-3.0	0.5-1.0	.28	.37			
	36-42	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	42-55	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	55-65	---	---	---	---	---	---	---	---			
19: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Fivebit-----	0-4	10-20	1.40-1.60	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.10	1	5	56
	4-9	18-25	1.35-1.55	0.2-0.6	0.06-0.11	0.0-2.9	1.0-3.0	.28	.37			
	9-15	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	15-19	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
20: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
21: Balm-----	0-3	10-18	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.24	.24	3	4L	86
	3-15	10-18	1.30-1.50	0.6-2	0.13-0.18	0.0-2.9	1.0-3.0	.37	.37			
	15-27	10-18	1.30-1.50	0.6-2	0.13-0.18	0.0-2.9	0.5-3.0	.37	.37			
	27-61	0-5	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.05	.15			
Catherine-----	0-22	18-27	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	4.0-10	.28	.28	4	6	48
	22-41	18-35	1.25-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-4.0	.37	.37			
	41-46	18-35	1.25-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-4.0	.37	.37			
	46-60	0-10	1.25-1.40	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.17	.28			
22: Bittercreek-----	0-11	10-18	1.10-1.45	0.6-2	0.19-0.21	0.0-2.9	8.0-12	.43	.43	3	4	86
	11-19	10-18	1.10-1.60	0.6-2	0.14-0.17	0.0-2.9	1.0-4.0	.17	.17			
	19-39	3-10	1.50-1.65	6-20	0.02-0.08	0.0-2.9	0.5-1.0	.05	.10			
	39-60	3-10	1.50-1.65	6-20	0.02-0.08	0.0-2.9	0.5-1.0	.05	.10			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
22: Mippon-----	0-3	10-20	1.10-1.30	0.6-2	0.15-0.20	0.0-2.9	1.0-3.0	.28	.28	2	5	56
	3-6	5-10	1.25-1.50	2-6	0.13-0.17	0.0-2.9	1.0-2.0	.32	.32			
	6-10	5-10	1.25-1.50	2-6	0.13-0.17	0.0-2.9	1.0-2.0	.32	.32			
	10-21	2-10	1.45-1.65	6-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.15			
	21-60	2-10	1.45-1.65	6-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.15			
23: Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
24: Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
25: Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
26: Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
Clearline-----	0-4	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-5.0	.15	.17	3	6	48
	4-16	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-3.0	.20	.28			
	16-26	5-15	0.85-1.00	2-6	0.11-0.24	1.0-3.0	1.0-3.0	.28	.37			
	26-36	5-15	1.00-1.20	2-6	0.06-0.15	1.0-3.0	0.5-1.0	.28	.37			
	36-42	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	42-55	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	55-65	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
27: Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
28: Bridgewater-----	0-8	10-18	1.15-1.35	2-6	0.05-0.08	0.0-2.9	2.0-9.0	.10	.28	2	8	0
	8-30	6-15	1.20-1.50	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.28			
	30-60	0-5	1.50-1.65	20-101	0.02-0.05	0.0-2.9	0.0-0.5	.05	.24			

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
29: Btree-----	0-7	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	4	2	134
	7-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.37	.43			
	17-22	10-20	1.25-1.50	0.6-2	0.10-0.12	0.0-2.9	0.5-2.0	.28	.37			
	22-31	35-50	1.35-1.55	0.06-0.2	0.11-0.13	6.0-8.9	0.5-2.0	.17	.28			
	31-42	35-50	1.35-1.55	0.06-0.2	0.10-0.11	6.0-8.9	0.5-2.0	.15	.24			
	42-52	---	---	---	---	---	---	---	---			
Flycreek-----	0-6	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	2	2	134
	6-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.43	.43			
	17-20	35-50	1.30-1.50	0.06-0.2	0.14-0.21	6.0-8.9	0.5-2.0	.28	.28			
	20-31	35-50	1.30-1.50	0.06-0.2	0.11-0.21	6.0-8.9	0.5-2.0	.17	.28			
	31-35	35-50	1.30-1.50	0.06-0.2	0.11-0.21	6.0-8.9	0.5-2.0	.17	.28			
	35-39	---	---	---	---	---	---	---	---			
30: Btree-----	0-7	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	4	2	134
	7-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.37	.43			
	17-22	10-20	1.25-1.50	0.6-2	0.10-0.12	0.0-2.9	0.5-2.0	.28	.37			
	22-31	35-50	1.35-1.55	0.06-0.2	0.11-0.13	6.0-8.9	0.5-2.0	.17	.28			
	31-42	35-50	1.35-1.55	0.06-0.2	0.10-0.11	6.0-8.9	0.5-2.0	.15	.24			
	42-52	---	---	---	---	---	---	---	---			
Flycreek-----	0-6	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	2	2	134
	6-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.43	.43			
	17-20	35-50	1.30-1.50	0.06-0.2	0.14-0.21	6.0-8.9	0.5-2.0	.28	.28			
	20-31	35-50	1.30-1.50	0.06-0.2	0.11-0.21	6.0-8.9	0.5-2.0	.17	.28			
	31-35	35-50	1.30-1.50	0.06-0.2	0.11-0.21	6.0-8.9	0.5-2.0	.17	.28			
	35-39	---	---	---	---	---	---	---	---			
31: Btree-----	0-7	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	4	2	134
	7-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.37	.43			
	17-22	10-20	1.25-1.50	0.6-2	0.10-0.12	0.0-2.9	0.5-2.0	.28	.37			
	22-31	35-50	1.35-1.55	0.06-0.2	0.11-0.13	6.0-8.9	0.5-2.0	.17	.28			
	31-42	35-50	1.35-1.55	0.06-0.2	0.10-0.11	6.0-8.9	0.5-2.0	.15	.24			
	42-52	---	---	---	---	---	---	---	---			
Flycreek-----	0-6	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	2	2	134
	6-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.43	.43			
	17-20	35-50	1.30-1.50	0.06-0.2	0.14-0.21	6.0-8.9	0.5					



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
33: Btree-----	0-7	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	4	2	134
	7-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.37	.43			
	17-22	10-20	1.25-1.50	0.6-2	0.10-0.12	0.0-2.9	0.5-2.0	.28	.37			
	22-31	35-50	1.35-1.55	0.06-0.2	0.11-0.13	6.0-8.9	0.5-2.0	.17	.28			
	31-42	35-50	1.35-1.55	0.06-0.2	0.10-0.11	6.0-8.9	0.5-2.0	.15	.24			
	42-52	---	---	---	---	---	---	---	---			
Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
34: Bucketlake-----	0-4	5-15	0.65-0.85	2-6	0.20-0.30	0.0-2.9	1.0-4.0	.37	.43	4	2	134
	4-14	5-15	0.65-0.85	2-6	0.19-0.29	0.0-2.9	0.5-2.0	.37	.43			
	14-21	5-10	1.25-1.40	2-6	0.05-0.06	0.0-2.9	0.5-2.0	.24	.32			
	21-37	5-10	1.30-1.50	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.24	.32			
	37-62	5-10	1.30-1.50	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.24	.32			
35: Bucketlake-----	0-4	5-15	0.65-0.85	2-6	0.20-0.30	0.0-2.9	1.0-4.0	.37	.43	4	2	134
	4-14	5-15	0.65-0.85	2-6	0.19-0.29	0.0-2.9	0.5-2.0	.37	.43			
	14-21	5-10	1.25-1.40	2-6	0.05-0.06	0.0-2.9	0.5-2.0	.24	.32			
	21-37	5-10	1.30-1.50	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.24	.32			
	37-62	5-10	1.30-1.50	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.24	.32			
36: Buford-----	0-16	18-27	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	16-36	18-27	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.32	.32			
	36-46	18-27	1.20-1.30	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.32	.37			
	46-50	40-50	1.30-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.28	.37			
	50-60	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
37: Buford-----	0-16	18-27	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	16-36	18-27	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.32	.32			
	36-46	18-27	1.20-1.30	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.32	.37			
	46-50	40-50	1.30-1.40	0.06-0.2	0.14-0.16	6.0-8.9	0.0-0.5	.28	.37			
	50-60	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
38: Bunchpoint-----	0-12	5-15	0.85-1.00	0.6-2	0.20-0.25	0.0-2.9	3.0-5.0	.28	.28	2	4	86
	12-24	12-18	1.00-1.20	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.37	.37			
	24-32	12-18	1.20-1.40	0.6-2	0.11-0.21	0.0-2.9	0.5-1.0	.37	.43			
	32-42	---	---	---	---	---	---	---	---			
39: Bunchpoint-----	0-12	5-15	0.85-1.00	0.6-2	0.20-0.25	0.0-2.9	3.0-5.0	.28	.28	2	4	86
	12-24	12-18	1.00-1.20	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.37	.37			
	24-32	12-18	1.20-1.40	0.6-2	0.11-0.21	0.0-2.9	0.5-1.0	.37	.43			
	32-42	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
40: Chard-----	0-8	5-12	1.20-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	8-18	8-12	1.30-1.45	0.6-2	0.15-0.19	0.0-2.9	0.0-1.0	.49	.49			
	18-30	8-12	1.30-1.45	0.6-2	0.15-0.19	0.0-2.9	0.0-1.0	.49	.49			
	30-68	4-15	1.35-1.50	2-6	0.09-0.13	0.0-2.9	0.0-0.5	.28	.28			
41: Cherrycreek-----	0-9	5-15	0.85-1.00	2-6	0.09-0.16	0.0-2.9	8.0-12	.20	.28	3	6	48
	9-28	12-18	0.85-1.00	2-6	0.05-0.16	0.0-2.9	6.0-8.0	.17	.28			
	28-43	12-18	1.00-1.20	2-6	0.04-0.15	0.0-2.9	2.0-4.0	.10	.32			
	43-53	18-25	1.20-1.40	0.6-2	0.03-0.14	0.0-2.9	0.5-1.0	.10	.37			
	53-63	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
42: Cherrycreek-----	0-9	5-15	0.85-1.00	2-6	0.09-0.16	0.0-2.9	8.0-12	.20	.28	3	6	48
	9-28	12-18	0.85-1.00	2-6	0.05-0.16	0.0-2.9	6.0-8.0	.17	.28			
	28-43	12-18	1.00-1.20	2-6	0.04-0.15	0.0-2.9	2.0-4.0	.10	.32			
	43-53	18-25	1.20-1.40	0.6-2	0.03-0.14	0.0-2.9	0.5-1.0	.10	.37			
	53-63	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Imnaha, moist-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
43: Cherrycreek-----	0-9	5-15	0.85-1.00	2-6	0.09-0.16	0.0-2.9	8.0-12	.20	.28	3	6	48
	9-28	12-18	0.85-1.00	2-6	0.05-0.16	0.0-2.9	6.0-8.0	.17	.28			
	28-43	12-18	1.00-1.20	2-6	0.04-0.15	0.0-2.9	2.0-4.0	.10	.32			
	43-53	18-25	1.20-1.40	0.6-2	0.03-0.14	0.0-2.9	0.5-1.0	.10	.37			
	53-63	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
44: Cherrycreek-----	0-9	5-15	0.85-1.00	2-6	0.09-0.16	0.0-2.9	8.0-12	.20	.28	3	6	48
	9-28	12-18	0.85-1.00	2-6	0.05-0.16	0.0-2.9	6.0-8.0	.17	.28			
	28-43	12-18	1.00-1.20	2-6	0.04-0.15	0.0-2.9	2.0-4.0	.10	.32			
	43-53	18-25	1.20-1.40	0.6-2	0.03-0.14	0.0-2.9	0.5-1.0	.10	.37			
	53-63	---	---	---	---	---	---	---	---			
Limberjim-----	0-5	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	3	2	134
	5-15	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32			
	15-20	18-25	1.10-1.40	0.6-2	0.10-0.19	0.0-2.9	0.5-1.0	.32	.37			
	20-41	20-30	1.20-1.50	0.6-2	0.04-0.14	3.0-5.9	0.0-0.5	.24	.37			
	41-51	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
45: Chesnimnus-----	0-7	18-25	1.10-1.30	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	7-13	27-35	1.20-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.37	.43			
	13-26	27-35	1.20-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.37	.43			
	26-34	27-35	1.20-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.37	.43			
	34-48	18-35	1.40-1.60	0.6-2	0.16-0.18	3.0-5.9	0.0-0.5	.32	.37			
	48-60	5-15	1.45-1.65	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.32			
46: Chesnimnus-----	0-7	18-25	1.10-1.30	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.28	.28	5	7	38
	7-13	27-35	1.20-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.37	.43			
	13-26	27-35	1.20-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.37	.43			
	26-34	27-35	1.20-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.37	.43			
	34-48	18-35	1.40-1.60	0.6-2	0.16-0.18	3.0-5.9	0.0-0.5	.32	.37			
	48-60	5-15	1.45-1.65	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.32			
47: Cheval-----	0-15	10-18	1.10-1.20	0.6-2	0.16-0.21	0.0-2.9	4.0-6.0	.32	.32	3	5	56
	15-24	10-20	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-3.0	.32	.37			
	24-31	10-20	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-3.0	.32	.37			
	31-60	5-15	1.30-1.50	20-101	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
48: Cloverland-----	0-9	15-25	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	5.0-9.0	.32	.32	5	5	56
	9-33	22-35	1.30-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.37			
	33-45	30-50	1.45-1.60	0.06-0.2	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	45-60	30-50	1.45-1.60	0.06-0.2	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
49: Cloverland-----	0-9	15-25	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	5.0-9.0	.32	.32	5	5	56
	9-33	22-35	1.30-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.37			
	33-45	30-50	1.45-1.60	0.06-0.2	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	45-60	30-50	1.45-1.60	0.06-0.2	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
50: Conley-----	0-14	27-35	1.10-1.35	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.32	.32	3	7	38
	14-23	18-30	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			
	23-40	40-50	1.35-1.45	0.0015-0.06	0.14-0.16	6.0-8.9	0.0-0.5	.24	.24			
	40-60	27-35	1.25-1.35	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.37			
51: Conley-----	0-14	27-35	1.10-1.35	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.32	.32	3	7	38
	14-23	18-30	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			
	23-40	40-50	1.35-1.45	0.0015-0.06	0.14-0.16	6.0-8.9	0.0-0.5	.24	.24			
	40-60	27-35	1.25-1.35	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.37			
52: Copperfield-----	0-4	10-18	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	3.0-5.0	.24	.37	5	8	0
	4-22	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-3.0	.24	.37			
	22-42	27-35	1.20-1.30	0.2-0.6	0.05-0.13	3.0-5.9	1.0-2.0	.20	.37			
	42-60	35-50	1.20-1.40	0.06-0.2	0.04-0.10	6.0-8.9	0.5-1.0	.17	.37			
Thiessen-----	0-3	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	2.0-3.0	.10	.43	2	8	0
	3-6	35-45	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	6-14	35-45	1.20-1.35	0.2-0.6	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	14-23	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	23-34	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	34-44	---	---	---	---	---	---	---	---			
53: Copperfield-----	0-4	10-18	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	3.0-5.0	.24	.37	5	8	0
	4-22	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-3.0	.24	.37			
	22-42	27-35	1.20-1.30	0.2-0.6	0.05-0.13	3.0-5.9	1.0-2.0	.20	.37			
	42-60	35-50	1.20-1.40	0.06-0.2	0.04-0.10	6.0-8.9	0.5-1.0	.17	.37			
Thiessen-----	0-3	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	2.0-3.0	.10	.43	2	8	0
	3-6	35-45	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	6-14	35-45	1.20-1.35	0.2-0.6	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	14-23	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	23-34	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	34-44	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
53: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
54: Cowsly-----	0-3	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
55: Cowsly-----	0-3	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
56: Cowsly-----	0-3	18-27	1.00-1.20	0.6-2	0.13-0.16	0.0-2.9	2.0-3.0	.28	.32	3	7	38
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
57: Cowsly, cobbly-----	0-3	18-27	1.10-1.25	0.6-2	0.13-0.16	0.0-2.9	2.0-3.0	.28	.32	3	7	38
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
Cowsly-----	0-3	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
58: Cowsly, cobbly-----	0-3	18-27	1.10-1.25	0.6-2	0.13-0.16	0.0-2.9	2.0-3.0	.28	.32	3	7	38
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
Cowsly-----	0-3	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			
59: Cowsly-----	0-3	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	3-20	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	20-23	18-27	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.37	.37			
	23-41	40-50	1.20-1.40	0.0015-0.06	0.14-0.18	6.0-8.9	0.0-0.5	.28	.28			
	41-50	40-50	1.20-1.40	0.0015-0.06	0.12-0.18	6.0-8.9	0.0-0.5	.24	.28			
	50-60	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
59: Howmeadows-----	0-7	27-35	1.10-1.30	0.6-2	0.18-0.21	3.0-5.9	3.0-6.0	.32	.32	2	7	38
	7-10	35-45	1.30-1.45	0.06-0.2	0.17-0.21	3.0-5.9	1.0-2.0	.28	.32			
	10-21	35-50	1.30-1.55	0.0015-0.06	0.06-0.15	6.0-8.9	0.5-1.0	.24	.28			
	21-26	35-50	1.30-1.55	0.0015-0.06	0.06-0.15	6.0-8.9	0.5-1.0	.24	.28			
	26-36	---	---	---	---	---	---	---	---			
Sherod-----	0-5	20-27	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-4.0	.32	.32	1	6	48
	5-8	25-35	1.25-1.40	0.2-0.6	0.18-0.21	3.0-5.9	2.0-3.0	.28	.28			
	8-17	25-35	1.30-1.45	0.2-0.6	0.10-0.19	3.0-5.9	1.0-2.0	.32	.28			
	17-19	40-50	1.35-1.50	0.06-0.2	0.05-0.11	6.0-8.9	0.0-1.0	.32	.24			
	19-29	---	---	---	---	---	---	---	---			
60: Demasters-----	0-9	15-20	1.15-1.35	0.6-2	0.15-0.20	0.0-2.9	4.0-6.0	.37	.43	3	5	56
	9-24	15-20	1.30-1.45	0.6-2	0.15-0.20	0.0-2.9	2.0-4.0	.32	.37			
	24-33	22-30	1.25-1.45	0.6-2	0.14-0.18	3.0-5.9	1.0-2.0	.24	.37			
	33-44	22-30	1.25-1.45	0.6-2	0.11-0.15	3.0-5.9	0.0-0.5	.15	.43			
	44-54	---	---	---	---	---	---	---	---			
Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	7	38
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
61: Dixiejett-----	0-6	10-25	1.20-1.40	0.6-2	0.09-0.15	0.0-2.9	2.0-5.0	.15	.28	3	5	56
	6-10	10-25	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	2.0-5.0	.10	.32			
	10-18	25-35	1.30-1.50	0.2-0.6	0.04-0.10	3.0-5.9	1.0-2.0	.05	.24			
	18-27	25-35	1.30-1.50	0.2-0.6	0.04-0.10	3.0-5.9	1.0-2.0	.05	.24			
	27-43	20-30	1.20-1.40	0.2-0.6	0.04-0.10	0.0-2.9	0.5-1.0	.05	.32			
	43-53	---	---	---	---	---	---	---	---			
Licksillet-----	0-7	10-20	1.45-1.55	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.32	.43	1	7	38
	7-19	18-27	1.45-1.65	0.6-6	0.04-0.11	0.0-2.9	0.5-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			
62: Doublecreek-----	0-4	7-12	1.00-1.10	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	4-16	7-12	1.00-1.10	2-6	0.15-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-22	10-18	1.00-1.20	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.37	.43			
	22-40	10-18	1.20-1.40	0.6-2	0.09-0.21	0.0-2.9	0.5-1.0	.32	.37			
	40-61	10-18	1.20-1.40	0.6-2	0.08-0.21	0.0-2.9	0.0-0.5	.32	.37			
Flybow-----	0-2	10-15	1.40-1.55	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.32	1	7	38
	2-8	10-15	1.40-1.55	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.32			
	8-18	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
63: Doublecreek-----	0-4	7-12	1.00-1.10	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	4-16	7-12	1.00-1.10	2-6	0.15-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-22	10-18	1.00-1.20	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.37	.43			
	22-40	10-18	1.20-1.40	0.6-2	0.09-0.21	0.0-2.9	0.5-1.0	.32	.37			
	40-61	10-18	1.20-1.40	0.6-2	0.08-0.21	0.0-2.9	0.0-0.5	.32	.37			
Langrell-----	0-9	8-18	1.30-1.40	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.17	.28	5	6	48
	9-20	8-18	1.30-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.20	.28			
	20-32	8-18	1.35-1.45	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.10	.28			
	32-50	8-18	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.20			
	50-60	8-18	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.20			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
64: Doublecreek-----	0-4	7-12	1.00-1.10	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	4-16	7-12	1.00-1.10	2-6	0.15-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-22	10-18	1.00-1.20	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.37	.43			
	22-40	10-18	1.20-1.40	0.6-2	0.09-0.21	0.0-2.9	0.5-1.0	.32	.37			
	40-61	10-18	1.20-1.40	0.6-2	0.08-0.21	0.0-2.9	0.0-0.5	.32	.37			
Phys-----	0-10	18-27	1.20-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	10-16	20-30	1.30-1.40	0.6-2	0.10-0.15	1.0-5.9	0.5-1.0	.32	.37			
	16-23	27-35	1.30-1.40	0.2-0.6	0.09-0.15	3.0-5.9	0.5-1.0	.24	.37			
	23-60	15-25	1.30-1.50	2-6	0.04-0.09	0.0-2.9	0.0-0.5	.20	.32			
65: Downards-----	0-3	15-25	0.85-1.00	0.6-2	0.11-0.14	0.0-2.9	3.0-5.0	.15	.20	5	3	86
	3-12	20-30	0.95-1.10	0.6-2	0.10-0.16	0.0-2.9	2.0-4.0	.15	.28			
	12-20	25-35	1.20-1.30	0.2-0.6	0.08-0.13	0.0-2.9	1.0-2.0	.10	.32			
	20-61	25-35	1.25-1.35	0.2-0.6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.37			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
66: Downards-----	0-3	15-25	0.85-1.00	0.6-2	0.11-0.14	0.0-2.9	3.0-5.0	.15	.20	5	3	86
	3-12	20-30	0.95-1.10	0.6-2	0.10-0.16	0.0-2.9	2.0-4.0	.15	.28			
	12-20	25-35	1.20-1.30	0.2-0.6	0.08-0.13	0.0-2.9	1.0-2.0	.10	.32			
	20-61	25-35	1.25-1.35	0.2-0.6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.37			
Emily-----	0-5	15-25	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	2.0-3.0	.32	.32	5	6	48
	5-14	25-35	1.25-1.30	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.20	.37			
	14-33	25-35	1.25-1.30	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.20	.37			
	33-60	20-30	1.30-1.45	0.6-2	0.04-0.08	0.0-2.9	0.0-0.5	.20	.37			
Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
67: Downards-----	0-3	15-25	0.85-1.00	0.6-2	0.11-0.14	0.0-2.9	3.0-5.0	.15	.20	3	3	86
	3-12	20-30	0.95-1.10	0.6-2	0.10-0.16	0.0-2.9	2.0-4.0	.15	.28			
	12-20	25-35	1.20-1.30	0.2-0.6	0.08-0.13	0.0-2.9	1.0-2.0	.10	.32			
	20-51	25-35	1.25-1.35	0.2-0.6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.37			
	51-61	---	---	---	---	---	---	---	---			
Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
68: Downards-----	0-3	15-25	0.85-1.00	0.6-2	0.11-0.14	0.0-2.9	3.0-5.0	.15	.20	3	3	86
	3-12	20-30	0.95-1.10	0.6-2	0.10-0.16	0.0-2.9	2.0-4.0	.15	.28			
	12-20	25-35	1.20-1.30	0.2-0.6	0.08-0.13	0.0-2.9	1.0-2.0	.10	.32			
	20-51	25-35	1.25-1.35	0.2-0.6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.37			
	51-61	---	---	---	---	---	---	---	---			
Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
69: Downeygulch-----	0-3	12-18	0.85-1.00	2-6	0.20-0.25	0.0-2.9	3.0-6.0	.24	.28	2	5	56
	3-13	12-18	1.00-1.20	0.6-2	0.17-0.25	0.0-2.9	1.0-3.0	.32	.37			
	13-24	12-18	1.00-1.20	0.6-2	0.17-0.25	0.0-2.9	0.5-2.0	.37	.43			
	24-34	---	---	---	---	---	---	---	---			
Lowerbluff-----	0-6	10-15	0.75-0.95	2-6	0.20-0.35	0.0-2.9	6.0-8.0	.28	.28	1	2	134
	6-15	10-18	0.85-1.00	2-6	0.19-0.35	0.0-2.9	1.0-4.0	.28	.32			
	15-25	---	---	---	---	---	---	---	---			
70: Downeygulch-----	0-3	12-18	0.85-1.00	2-6	0.20-0.25	0.0-2.9	3.0-6.0	.24	.28	2	5	56
	3-13	12-18	1.00-1.20	0.6-2	0.17-0.25	0.0-2.9	1.0-3.0	.32	.37			
	13-24	12-18	1.00-1.20	0.6-2	0.17-0.25	0.0-2.9	0.5-2.0	.37	.43			
	24-34	---	---	---	---	---	---	---	---			
Thirstygulch-----	0-10	10-18	0.85-1.00	2-6	0.07-0.13	0.0-2.9	3.0-6.0	.20	.28	1	7	38
	10-19	10-18	1.20-1.40	2-6	0.03-0.12	0.0-2.9	0.5-1.0	.20	.32			
	19-29	---	---	---	---	---	---	---	---			
71: Eggleson-----	0-3	10-15	1.40-1.50	0.6-2	0.10-0.15	0.0-2.9	2.0-3.0	.20	.28	5	6	48
	3-10	5-10	1.45-1.60	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28			
	10-17	0-5	1.50-1.70	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
	17-30	0-5	1.50-1.70	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
	30-60	0-5	1.50-1.70	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
72: Emily-----	0-5	15-25	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	2.0-3.0	.32	.32	5	6	48
	5-14	25-35	1.25-1.30	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.20	.37			
	14-33	25-35	1.25-1.30	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.20	.37			
	33-60	20-30	1.30-1.45	0.6-2	0.04-0.08	0.0-2.9	0.0-0.5	.20	.37			
Wolot-----	0-21	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	1.0-5.0	.43	.43	5	2	134
	21-48	18-35	1.00-1.45	0.2-0.6	0.16-0.24	3.0-5.9	0.1-1.0	.43	.43			
	48-60	18-35	1.00-1.45	0.2-0.6	0.16-0.24	3.0-5.9	0.1-1.0	.43	.43			
73: Endoaquolls, mesic----	0-10	15-25	1.40-1.50	0.6-2	0.13-0.17	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	10-16	18-35	1.25-1.50	0.2-2	0.13-0.18	3.0-5.9	1.0-2.0	.32	.37			
	16-21	15-30	1.35-1.60	0.2-2	0.08-0.12	3.0-5.9	0.5-1.0	.17	.37			
	21-31	15-30	1.35-1.60	0.2-2	0.08-0.12	3.0-5.9	0.5-1.0	.17	.37			
	31-60	5-15	1.40-1.60	2-20	0.02-0.07	0.0-2.9	0.0-0.5	.05	.20			
74: Ferguson-----	0-7	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-24	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	0.5-1.0	.43	.43			
	24-38	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	38-45	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	45-60	5-15	1.50-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.05	.15			
75: Ferguson-----	0-7	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-24	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	0.5-1.0	.43	.43			
	24-38	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	38-45	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	45-60	5-15	1.50-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.05	.15			
76: Ferguson-----	0-7	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-24	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	0.5-1.0	.43	.43			
	24-38	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	38-45	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	45-60	5-15	1.50-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.05	.15			
77: Ferguson-----	0-7	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-24	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	0.5-1.0	.43	.43			
	24-38	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	38-45	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	45-60	5-15	1.50-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.05	.15			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
78: Ferguson-----	0-7	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-24	5-15	0.85-1.00	2-6	0.25-0.30	0.0-2.9	0.5-1.0	.43	.43			
	24-38	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	38-45	15-22	1.45-1.55	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	45-60	5-15	1.50-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.05	.15			
79: Flybow-----	0-2	10-15	1.40-1.55	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.32	1	7	38
	2-8	10-15	1.40-1.55	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.32			
	8-18	---	---	---	---	---	---	---	---			
Rubble land-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
80: Flybow-----	0-2	10-15	1.40-1.55	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.32	1	7	38
	2-8	10-15	1.40-1.55	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.32			
	8-18	---	---	---	---	---	---	---	---			
Rubble land-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
81: Flycreek-----	0-6	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	2	2	134
	6-17	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.43	.43			
	17-20	35-50	1.30-1.50	0.06-0.2	0.14-0.21	6.0-8.9	0.5-2.0	.28	.28			
	20-31	35-50	1.30-1.50	0.06-0.2	0.11-0.21	6.0-8.9	0.5-2.0	.17	.28			
	31-35	35-50	1.30-1.50	0.06-0.2	0.11-0.21	6.0-8.9	0.5-2.0	.17	.28			
	35-39	---	---	---	---	---	---	---	---			
Flyvalley-----	0-6	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.43	.43	1	2	134
	6-19	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	0.5-2.0	.37	.43			
	19-29	---	---	---	---	---	---	---	---			
82: Freels-----	0-5	10-18	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-4.0	.28	.28	5	5	56
	5-34	10-18	1.20-1.40	0.6-6	0.13-0.21	0.0-2.9	2.0-3.0	.24	.28			
	34-51	10-18	1.20-1.40	0.6-6	0.13-0.21	0.0-2.9	0.5-1.0	.28	.32			
	51-60	5-15	1.20-1.50	0.6-20	0.05-0.21	0.0-2.9	0.0-0.5	.15	.28			
83: Geisercreek-----	0-5	5-15	0.65-0.85	2-6	0.17-0.21	0.0-2.9	1.0-5.0	.37	.37	4	2	134
	5-14	5-15	0.65-0.85	2-6	0.17-0.21	0.0-2.9	0.5-2.0	.43	.43			
	14-19	5-15	0.65-0.85	2-6	0.11-0.21	0.0-2.9	0.5-2.0	.43	.43			
	19-23	15-25	1.30-1.40	0.6-2	0.14-0.21	0.0-2.9	0.5-2.0	.28	.37			
	23-29	35-45	1.30-1.50	0.06-0.2	0.13-0.21	3.0-5.9	0.0-2.0	.24	.28			
	29-35	35-45	1.30-1.50	0.06-0.2	0.13-0.21	3.0-5.9	0.0-2.0	.24	.28			
	35-60	30-40	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-1.0	.24	.28			
84: Gelsinger-----	0-10	18-27	0.90-1.00	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32	5	6	48
	10-14	27-35	1.30-1.45	0.2-0.6	0.19-0.21	3.0-5.9	2.0-4.0	.32	.32			
	14-21	40-50	1.35-1.50	0.06-0.2	0.14-0.16	6.0-8.9	1.0-3.0	.28	.28			
	21-36	35-45	1.30-1.45	0.06-0.6	0.15-0.21	3.0-5.9	1.0-2.0	.24	.24			
	36-45	25-35	1.40-1.50	0.2-0.6	0.14-0.18	0.0-2.9	0.5-1.0	.37	.37			
	45-51	25-35	1.40-1.50	0.2-0.6	0.14-0.18	0.0-2.9	0.5-1.0	.37	.37			
	51-60	25-35	1.40-1.50	0.2-0.6	0.11-0.21	3.0-5.9	0.5-1.0	.28	.32			
85: Gelsinger-----	0-10	18-27	0.90-1.00	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32	5	6	48
	10-14	27-35	1.30-1.45	0.2-0.6	0.19-0.21	3.0-5.9	2.0-4.0	.32	.32			
	14-21	40-50	1.35-1.50	0.06-0.2	0.14-0.16	6.0-8.9	1.0-3.0	.28	.28			
	21-36	35-45	1.30-1.45	0.06-0.6	0.15-0.21	3.0-5.9	1.0-2.0	.24	.24			
	36-45	25-35	1.40-1.50	0.2-0.6	0.14-0.18	0.0-2.9	0.5-1.0	.37	.37			
	45-51	25-35	1.40-1.50	0.2-0.6	0.14-0.18	0.0-2.9	0.5-1.0	.37	.37			
	51-60	25-35	1.40-1.50	0.2-0.6	0.11-0.21	3.0-5.9	0.5-1.0	.28	.32			



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
86: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
87: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
88: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
89: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
90: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
91: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
92: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	8	0
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
93: Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	7	38
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
94: Gwin-----	0-5	18-27	1.30-1.35	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.37	.49	1	7	38
	5-9	25-35	1.45-1.60	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.28	.43			
	9-13	25-35	1.45-1.60	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.28	.43			
	13-23	---	---	---	---	---	---	---	---			
Kettenbach-----	0-8	20-27	1.45-1.55	0.6-2	0.08-0.15	0.0-2.9	2.0-4.0	.20	.24	2	7	38
	8-16	20-30	1.25-1.55	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.28	.37			
	16-24	27-35	1.35-1.60	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.28	.43			
	24-28	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
95: Gwin-----	0-5	18-27	1.30-1.35	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.37	.49	1	7	38
	5-9	25-35	1.45-1.60	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.28	.43			
	9-13	25-35	1.45-1.60	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.28	.43			
	13-23	---	---	---	---	---	---	---	---			
Kettenbach-----	0-8	20-27	1.45-1.55	0.6-2	0.08-0.15	0.0-2.9	2.0-4.0	.20	.24	2	7	38
	8-16	20-30	1.25-1.55	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.28	.37			
	16-24	27-35	1.35-1.60	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.28	.43			
	24-28	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
96: Gwin-----	0-5	18-27	1.30-1.35	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.37	.49	1	7	38
	5-9	25-35	1.45-1.60	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.28	.43			
	9-13	25-35	1.45-1.60	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.28	.43			
	13-23	---	---	---	---	---	---	---	---			
Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
96: Kettenbach-----	0-8	20-27	1.45-1.55	0.6-2	0.08-0.15	0.0-2.9	2.0-4.0	.20	.24	2	7	38
	8-16	20-30	1.25-1.55	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.28	.37			
	16-24	27-35	1.35-1.60	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.28	.43			
	24-28	---	---	---	---	---	---	---				
97: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---				
Kettenbach-----	0-8	20-27	1.45-1.55	0.6-2	0.08-0.15	0.0-2.9	2.0-4.0	.20	.24	2	7	38
	8-16	20-30	1.25-1.55	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.28	.37			
	16-24	27-35	1.35-1.60	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.28	.43			
	24-28	---	---	---	---	---	---	---				
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
98: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---				
Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	7	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---				
99: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---				
Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	8	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---				
100: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---				
Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	8	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---				
Kettenbach-----	0-8	20-27	1.45-1.55	0.6-2	0.08-0.15	0.0-2.9	2.0-4.0	.20	.24	2	7	38
	8-16	20-30	1.25-1.55	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.28	.37			
	16-24	27-35	1.35-1.60	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.28	.43			
	24-28	---	---	---	---	---	---	---				
101: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---				

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
101: Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	8	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---	---			
Kettenbach-----	0-8	20-27	1.45-1.55	0.6-2	0.08-0.15	0.0-2.9	2.0-4.0	.20	.24	2	7	38
	8-16	20-30	1.25-1.55	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.28	.37			
	16-24	27-35	1.35-1.60	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.28	.43			
	24-28	---	---	---	---	---	---	---	---			
102: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	8	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---	---			
Kettenbach-----	0-8	20-27	1.45-1.55	0.6-2	0.08-0.15	0.0-2.9	2.0-4.0	.20	.24	2	7	38
	8-16	20-30	1.25-1.55	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.28	.37			
	16-24	27-35	1.35-1.60	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.28	.43			
	24-28	---	---	---	---	---	---	---	---			
103: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	8	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
104: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17				

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
106: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
107: Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
108: Hapludolls, frigid----	0-11	10-27	1.20-1.50	0.6-6	0.09-0.21	0.0-2.9	2.0-8.0	.24	.24	5	6	48
	11-24	15-30	1.25-1.70	0.2-6	0.07-0.21	0.0-2.9	0.5-2.0	.17	.24			
	24-43	5-35	1.25-1.70	0.2-6	0.06-0.20	0.0-2.9	0.0-0.5	.10	.24			
	43-61	5-35	1.25-1.70	0.2-6	0.06-0.20	0.0-2.9	0.0-0.5	.10	.24			
Endoaquolls, Frigid---	0-10	12-24	1.20-1.50	0.6-6	0.15-0.21	0.0-2.9	2.0-8.0	.24	.24	5	6	48
	10-18	5-30	1.10-1.50	0.2-6	0.06-0.21	0.0-2.9	2.0-8.0	.17	.24			
	18-61	5-35	1.25-1.70	0.2-20	0.02-0.12	0.0-2.9	0.0-0.5	.10	.24			
Endoaquents, frigid----	0-8	5-15	1.15-1.50	0.6-6	0.08-0.21	0.0-2.9	2.0-4.0	.20	.37	5	6	48
	8-15	5-20	1.25-1.70	0.6-20	0.03-0.15	0.0-2.9	0.0-0.5	.10	.37			
	15-61	5-25	1.25-1.70	0.6-20	0.02-0.16	0.0-2.9	0.0-0.5	.10	.37			
109: Harl-----	0-2	5-15	0.65-0.85	2-6	0.11-0.24	0.0-2.9	2.0-4.0	.10	.32	5	4	86
	2-13	5-15	0.65-0.85	2-6	0.09-0.26	0.0-2.9	2.0-4.0	.10	.32			
	13-24	5-15	0.65-0.85	2-6	0.09-0.26	0.0-2.9	2.0-4.0	.10	.32			

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
111: Harl-----	0-2	5-15	0.65-0.85	2-6	0.11-0.24	0.0-2.9	2.0-4.0	.10	.32	5	4	86
	2-13	5-15	0.65-0.85	2-6	0.09-0.26	0.0-2.9	2.0-4.0	.10	.32			
	13-24	5-15	0.65-0.85	2-6	0.09-0.26	0.0-2.9	2.0-4.0	.10	.32			
	24-29	10-18	1.00-1.30	0.6-2	0.03-0.11	0.0-2.9	2.0-3.0	.10	.37			
	29-48	10-18	1.10-1.40	0.6-2	0.03-0.07	0.0-2.9	2.0-3.0	.15	.43			
	48-61	10-18	1.10-1.40	0.6-2	0.03-0.07	0.0-2.9	0.5-1.0	.15	.43			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
112: Harl-----	0-2	5-15	0.65-0.85	2-6	0.11-0.24	0.0-2.9	2.0-4.0	.10	.32	5	4	86
	2-13	5-15	0.65-0.85	2-6	0.09-0.26	0.0-2.9	2.0-4.0	.10	.32			
	13-24	5-15	0.65-0.85	2-6	0.09-0.26	0.0-2.9	2.0-4.0	.10	.32			
	24-29	10-18	1.00-1.30	0.6-2	0.03-0.11	0.0-2.9	2.0-3.0	.10	.37			
	29-48	10-18	1.10-1.40	0.6-2	0.03-0.07	0.0-2.9	2.0-3.0	.15	.43			
	48-61	10-18	1.10-1.40	0.6-2	0.03-0.07	0.0-2.9	0.5-1.0	.15	.43			
Limberjim-----	0-5	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	3	2	134
	5-15	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32			
	15-20	18-25	1.10-1.40	0.6-2	0.10-0.19	0.0-2.9	0.5-1.0	.32	.37			
	20-41	20-30	1.20-1.50	0.6-2	0.04-0.14	3.0-5.9	0.0-0.5	.24	.37			
	41-51	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
113: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
114: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10				

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
117: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
118: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
119: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
120: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
121: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
122: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>g/cc</i>	<i>In/hr</i>	<i>In/in</i>	<i>Pct</i>	<i>Pct</i>					
122: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
123: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
124: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
126: Snell-----	0-4	27-35	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
127: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	7	38
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			
128: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
129: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Threebuck-----	0-4	5-15	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-5.0	.24	.24	3	2	134
	4-14	15-25	0.80-0.90	0.6-2	0.21-0.29	0.0-2.9	1.0-3.0	.28	.32			
	14-25	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	25-36	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	36-47	35-50	1.30-1.55	0.06-0.2	0.08-0.12	6.0-8.9	1.0-2.0	.17	.28			
	47-57	---	---	---	---	---	---	---	---			
130: Hershal-----	0-10	12-18	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-4.0	.28	.28	3	5	56
	10-24	7-12	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43			
	24-60	0-7	1.30-1.50	20-101	0.03-0.05	0.0-2.9	0.0-0.5	.05	.15			
131: Hershal-----	0-10	12-18	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-4.0	.28	.28	3	5	56
	10-24	7-12	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43			
	24-60	0-7	1.30-1.50	20-101	0.03-0.05	0.0-2.9	0.0-0.5	.05	.15			
Voats-----	0-15	5-10	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	2.0-3.0	.32	.32	2	3	86
	15-60	2-5	1.50-1.70	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
132:												
Hershal-----	0-10	12-18	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-4.0	.28	.28	3	5	56
	10-24	7-12	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43			
	24-60	0-7	1.30-1.50	20-101	0.03-0.05	0.0-2.9	0.0-0.5	.05	.15			
Voats-----	0-15	5-10	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	2.0-3.0	.32	.32	2	3	86
	15-60	2-5	1.50-1.70	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
Veazie-----	0-19	10-18	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	19-28	10-18	1.30-1.50	0.6-6	0.14-0.19	0.0-2.9	1.0-2.0	.24	.32			
	28-34	0-5	1.50-1.70	20-101	0.05-0.08	0.0-2.9	0.5-1.0	.05	.15			
	34-60	0-5	1.50-1.70	20-101	0.05-0.08	0.0-2.9	0.5-1.0	.05	.15			
133:												
Howmeadows-----	0-7	27-35	1.10-1.30	0.6-2	0.18-0.21	3.0-5.9	3.0-6.0	.32	.32	2	7	38
	7-10	35-45	1.30-1.45	0.06-0.2	0.17-0.21	3.0-5.9	1.0-2.0	.28	.32			
	10-21	35-50	1.30-1.55	0.0015-0.06	0.06-0.15	6.0-8.9	0.5-1.0	.24	.28			
	21-26	35-50	1.30-1.55	0.0015-0.06	0.06-0.15	6.0-8.9	0.5-1.0	.24	.28			
	26-36	---	---	---	---	---	---	---	---			
Wilkins-----	0-19	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	4	6	48
	19-25	18-27	1.00-1.20	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.37	.37			
	25-52	40-60	1.20-1.30	0.0015-0.06	0.14-0.17	6.0-8.9	0.0-0.5	.37	.37			
	52-70	15-35	1.10-1.30	0.2-0.6	0.16-0.21	3.0-5.9	0.0-0.5	.32	.32			
	70-76	15-35	1.10-1.30	0.2-0.6	0.16-0.21	3.0-5.9	0.0-0.5	.32	.32			
134:												
Hurwal-----	0-12	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	5.0-7.0	.17	.17	5	5	56
	12-18	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-4.0	.32	.32			
	18-56	20-35	1.20-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.5-2.0	.43	.43			
	56-60	20-27	1.20-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.37	.43			
135:												
Hurwal-----	0-12	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	5.0-7.0	.17	.17	5	5	56
	12-18	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-4.0	.32	.32			
	18-56	20-35	1.20-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.5-2.0	.43	.43			
	56-60	20-27	1.20-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.37	.43			
136:												
Hurwal, deep-----	0-12	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	5.0-7.0	.17	.17	3	5	56
	12-18	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-4.0	.32	.32			
	18-56	20-35	1.20-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.5-2.0	.43	.43			
	56-58	20-27	1.20-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.37	.43			
	58-68	---	---	---	---	---	---	---	---			
137:												
Hurwal, deep-----	0-12	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	5.0-7.0	.17	.17	3	5	56
	12-18	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-4.0	.32	.32			
	18-56	20-35	1.20-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.5-2.0	.43	.43			
	56-58	20-27	1.20-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.37	.43			
	58-68	---	---	---	---	---	---	---	---			
138:												
Hurwal-----	0-12	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	5.0-7.0	.17	.17	5	5	56
	12-18	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-4.0	.32	.32			
	18-56	20-35	1.20-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.5-2.0	.43	.43			
	56-60	20-27	1.20-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.37	.43			
139:												
Hurwal-----	0-12	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	5.0-7.0	.17	.17	5	5	56
	12-18	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-4.0	.32	.32			
	18-56	20-35	1.20-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.5-2.0	.43	.43			
	56-60	20-27	1.20-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.37	.43			
140:												
Hurwal-----	0-12	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	5.0-7.0	.17	.17	5	5	56
	12-18	18-27	1.00-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-4.0	.32	.32			
	18-56	20-35	1.20-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.5-2.0	.43	.43			
	56-60	20-27	1.20-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.37	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
141: Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
142: Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Imhaha, moist-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
143: Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
Clearline-----	0-4	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-5.0	.15	.17	3	6	48
	4-16	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-3.0	.20	.28			
	16-26	5-15	0.85-1.00	2-6	0.11-0.24	1.0-3.0	1.0-3.0	.28	.37			
	26-36	5-15	1.00-1.20	2-6	0.06-0.15	1.0-3.0	0.5-1.0	.28	.37			
	36-42	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	42-55	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	55-65	---	---	---	---	---	---	---	---			
144: Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Cherrycreek-----	0-9	5-15	0.85-1.00	2-6	0.09-0.16	0.0-2.9	8.0-12	.20	.28	3	6	48
	9-28	12-18	0.85-1.00	2-6	0.05-0.16	0.0-2.9	6.0-8.0	.17	.28			
	28-43	12-18	1.00-1.20	2-6	0.04-0.15	0.0-2.9	2.0-4.0	.10	.32			
	43-53	18-25	1.20-1.40	0.6-2	0.03-0.14	0.0-2.9	0.5-1.0	.10	.37			
	53-63	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
145:												
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Clearline-----	0-4	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-5.0	.15	.17	3	6	48
	4-16	5-10	0.85-1.00	2-6	0.14-0.28	1.0-3.0	2.0-3.0	.20	.28			
	16-26	5-15	0.85-1.00	2-6	0.11-0.24	1.0-3.0	1.0-3.0	.28	.37			
	26-36	5-15	1.00-1.20	2-6	0.06-0.15	1.0-3.0	0.5-1.0	.28	.37			
	36-42	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	42-55	12-18	1.20-1.40	2-6	0.05-0.14	1.0-3.0	0.5-1.0	.28	.37			
	55-65	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
146:												
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Cherrycreek-----	0-9	5-15	0.85-1.00	2-6	0.09-0.16	0.0-2.9	8.0-12	.20	.28	3	6	48
	9-28	12-18	0.85-1.00	2-6	0.05-0.16	0.0-2.9	6.0-8.0	.17	.28			
	28-43	12-18	1.00-1.20	2-6	0.04-0.15	0.0-2.9	2.0-4.0	.10	.32			
	43-53	18-25	1.20-1.40	0.6-2	0.03-0.14	0.0-2.9	0.5-1.0	.10	.37			
	53-63	---	---	---	---	---	---	---	---			
147:												
Josset-----	0-11	10-18	1.20-1.40	0.6-2	0.16-0.18	0.0-2.9	3.0-4.0	.28	.28	3	5	56
	11-22	10-18	1.20-1.40	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.28	.32			
	22-60	0-10	1.30-1.50	20-101	0.03-0.05	0.0-2.9	0.0-0.5	.05	.15			
148:												
Kahler-----	0-5	15-27	1.25-1.35	0.6-2	0.13-0.20	0.0-2.9	1.0-4.0	.37	.37	5	5	56
	5-27	20-27	1.25-1.35	0.6-2	0.15-0.21	3.0-5.9	1.0-4.0	.43	.43			
	27-40	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	40-44	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	44-61	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
149:												
Kahler-----	0-5	15-27	1.25-1.35	0.6-2	0.13-0.20	0.0-2.9	1.0-4.0	.37	.37	5	5	56
	5-27	20-27	1.25-1.35	0.6-2	0.15-0.21	3.0-5.9	1.0-4.0	.43	.43			
	27-40	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	40-44	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	44-61	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
150:												
Kahler-----	0-5	15-27	1.25-1.35	0.6-2	0.13-0.20	0.0-2.9	1.0-4.0	.37	.37	5	5	56
	5-27	20-27	1.25-1.35	0.6-2	0.15-0.21	3.0-5.9	1.0-4.0	.43	.43			
	27-40	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	40-44	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	44-61	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
150: Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	7	38
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
151: Kahler-----	0-5	15-27	1.25-1.35	0.6-2	0.13-0.20	0.0-2.9	1.0-4.0	.37	.37	5	5	56
	5-27	20-27	1.25-1.35	0.6-2	0.15-0.21	3.0-5.9	1.0-4.0	.43	.43			
	27-40	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	40-44	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
	44-61	18-35	1.30-1.40	0.2-0.6	0.13-0.20	3.0-5.9	0.5-1.0	.37	.43			
Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	7	38
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
152: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
153: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
154: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
155: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
156: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
157: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
158: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
159: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
160: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Fivebit-----	0-4	10-20	1.40-1.60	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.10	1	5	56
	4-9	18-25	1.35-1.55	0.2-0.6	0.06-0.11	0.0-2.9	1.0-3.0	.28	.37			
	9-15	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	15-19	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
161: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Fivebit-----	0-4	10-20	1.40-1.60	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.10	1	5	56
	4-9	18-25	1.35-1.55	0.2-0.6	0.06-0.11	0.0-2.9	1.0-3.0	.28	.37			
	9-15	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	15-19	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
162: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
163: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Kamela-----	0-8	12-20	0.85-0.95	0.6-2	0.17-0.25	0.0-2.9	1.0-2.0	.32	.37	2	5	56
	8-22	18-27	0.90-1.20	0.6-2	0.06-0.11	0.0-2.9	0.5-1.0	.10	.32			
	22-32	---	---	---	---	---	---	---	---			
Fivebit-----	0-4	10-20	1.40-1.60	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.10	1	5	56
	4-9	18-25	1.35-1.55	0.2-0.6	0.06-0.11	0.0-2.9	1.0-3.0	.28	.37			
	9-15	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	15-19	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
164: Klicker-----	0-3	18-27	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	2.0-5.0	.32	.32	2	5	56
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
165: Klicker-----	0-3	18-27	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	2.0-5.0	.32	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Thirstygulch-----	0-10	10-18	0.85-1.00	2-6	0.07-0.13	0.0-2.9	3.0-6.0	.20	.28	1	7	38
	10-19	10-18	1.20-1.40	2-6	0.03-0.12	0.0-2.9	0.5-1.0	.20	.32			
	19-29	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
166: Klicker-----	0-3	18-27	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	2.0-5.0	.32	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Thirstygulch-----	0-10	10-18	0.85-1.00	2-6	0.07-0.13	0.0-2.9	3.0-6.0	.20	.28	1	7	38
	10-19	10-18	1.20-1.40	2-6	0.03-0.12	0.0-2.9	0.5-1.0	.20	.32			
	19-29	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
166: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
167: Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
168: Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
169: Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
170: Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
171: Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
171: Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
Volstead-----	0-9	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	3	4	86
	9-13	10-15	0.95-1.00	0.6-2	0.25-0.35	0.0-2.9	1.0-2.0	.32	.32			
	13-23	18-30	1.25-1.40	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.28	.32			
	23-38	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	38-48	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	48-58	---	---	---	---	---	---	---	---			
172: Langrell-----	0-9	8-18	1.30-1.40	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.17	.28	5	6	48
	9-20	8-18	1.30-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.20	.28			
	20-32	8-18	1.35-1.45	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.10	.28			
	32-50	8-18	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.20			
	50-60	8-18	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.20			
173: Langrell-----	0-9	8-18	1.30-1.40	0.6-2	0.12-0.16	0.0-2.9	2.0-4.0	.17	.28	5	6	48
	9-20	8-18	1.30-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.20	.28			
	20-32	8-18	1.35-1.45	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.10	.28			
	32-50	8-18	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.20			
	50-60	8-18	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.20			
Snow-----	0-18	15-20	1.20-1.30	0.6-2	0.20-0.22	0.0-2.9	3.0-5.0	.32	.32	5	5	56
	18-36	18-22	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37			
	36-60	18-27	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
174: Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
175: Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
Volstead-----	0-9	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	3	4	86
	9-13	10-15	0.95-1.00	0.6-2	0.25-0.35	0.0-2.9	1.0-2.0	.32	.32			
	13-23	18-30	1.25-1.40	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.28	.32			
	23-38	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	38-48	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	48-58	---	---	---	---	---	---	---	---			
176: Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
176: Klickson-----	0-6	15-20	1.35-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-3.0	.24	.32	5	6	48
	6-18	18-25	1.40-1.55	0.6-2	0.09-0.13	0.0-2.9	1.0-2.0	.28	.37			
	18-38	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
	38-66	18-35	1.45-1.60	0.2-0.6	0.08-0.14	3.0-5.9	0.5-1.0	.24	.37			
Volstead-----	0-9	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	3	4	86
	9-13	10-15	0.95-1.00	0.6-2	0.25-0.35	0.0-2.9	1.0-2.0	.32	.32			
	13-23	18-30	1.25-1.40	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.28	.32			
	23-38	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	38-48	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	48-58	---	---	---	---	---	---	---	---			
177: Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
Melhorn-----	0-3	10-20	0.75-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-3.0	.37	.37	5	4	86
	3-20	10-20	1.00-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37			
	20-38	18-27	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	0.5-2.0	.32	.37			
	38-48	18-27	1.40-1.50	0.2-0.6	0.16-0.21	3.0-5.9	0.5-1.0	.32	.37			
	48-61	18-35	1.40-1.50	0.2-0.6	0.16-0.21	3.0-5.9	0.5-1.0	.32	.37			
178: Larabee-----	0-12	18-25	1.20-1.40	0.6-2	0.17-0.19	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-20	20-27	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.43	.49			
	20-36	25-35	1.25-1.50	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.28	.43			
	36-46	---	---	---	---	---	---	---	---			
Volstead-----	0-9	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	3	4	86
	9-13	10-15	0.95-1.00	0.6-2	0.25-0.35	0.0-2.9	1.0-2.0	.32	.32			
	13-23	18-30	1.25-1.40	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.28	.32			
	23-38	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	38-48	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	48-58	---	---	---	---	---	---	---	---			
179: Laufer-----	0-4	20-27	1.15-1.35	0.2-0.6	0.09-0.13	0.0-2.9	2.0-6.0	.10	.37	1	8	0
	4-8	35-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-3.0	.10	.28			
	8-16	35-45	1.30-1.50	0.2-0.6	0.05-0.10	6.0-8.9	1.0-2.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Thiessen-----	0-3	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	2.0-3.0	.10	.43	2	8	

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
181: Thiessen-----	0-3	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	2.0-3.0	.10	.43	2	8	0
	3-6	35-45	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	6-14	35-45	1.20-1.35	0.2-0.6	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	14-23	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	23-34	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	34-44	---	---	---	---	---	---	---	---			
182: Laufer-----	0-4	20-27	1.15-1.35	0.2-0.6	0.09-0.13	0.0-2.9	2.0-6.0	.10	.37	1	8	0
	4-8	35-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-3.0	.10	.28			
	8-16	35-45	1.30-1.50	0.2-0.6	0.05-0.10	6.0-8.9	1.0-2.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Thiessen-----	0-3	20-27	1.15-1.30	0.6-2	0.09-0.13	0.0-2.9	2.0-3.0	.10	.43	2	8	0
	3-6	35-45	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28			
	6-14	35-45	1.20-1.35	0.2-0.6	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	14-23	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	23-34	35-45	1.20-1.35	0.06-0.2	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28			
	34-44	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
183: Lawyer, stony-----	0-4	20-27	1.15-1.35	0.6-2	0.13-0.16	0.0-2.9	4.0-6.0	.24	.37	3	7	38
	4-11	20-27	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.15	.32			
	11-23	30-35	1.25-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0	.10	.37			
	23-35	30-35	1.25-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0	.10	.37			
	35-44	35-50	1.15-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.10	.37			
	44-54	---	---	---	---	---	---	---	---			
Lawyer-----	0-4	20-27	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	4.0-6.0	.37	.43	3	6	48
	4-11	20-27	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.15	.32			
	11-23	30-35	1.25-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0	.10	.37			
	23-35	30-35	1.25-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0	.10	.37			
	35-44	30-50	1.15-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.10	.37			
	44-54	---	---	---	---	---	---	---	---			
Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
184: Lickskillet-----	0-7	10-20	1.45-1.55	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.32	.43	1	7	38
	7-19	18-27	1.45-1.65	0.6-6	0.04-0.11	0.0-2.9	0.5-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
Dixiejett-----	0-6	10-25	1.20-1.40	0.6-2	0.09-0.15	0.0-2.9	2.0-5.0	.15	.28	3	5	56
	6-10	10-25	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	2.0-5.0	.10	.32			
	10-18	25-35	1.30-1.50	0.2-0.6	0.04-0.10	3.0-5.9	1.0-2.0	.05	.24			
	18-27	25-35	1.30-1.50	0.2-0.6	0.04-0.10	3.0-5.9	1.0-2.0	.05	.24			
	27-43	20-30	1.20-1.40	0.2-0.6	0.04-0.10	0.0-2.9	0.5-1.0	.05	.32			
	43-53	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
185: Lickskillet-----	0-7	10-20	1.45-1.55	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.32	.43	1	7	38
	7-19	18-27	1.45-1.65	0.6-6	0.04-0.11	0.0-2.9	0.5-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
Doublecreek-----	0-4	7-12	1.00-1.10	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	4-16	7-12	1.00-1.10	2-6	0.15-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-22	10-18	1.00-1.20	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.37	.43			
	22-40	10-18	1.20-1.40	0.6-2	0.09-0.21	0.0-2.9	0.5-1.0	.32	.37			
	40-61	10-18	1.20-1.40	0.6-2	0.08-0.21	0.0-2.9	0.0-0.5	.32	.37			
Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
186: Licksillet-----	0-7	10-20	1.45-1.55	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.32	.43	1	7	38
	7-19	18-27	1.45-1.65	0.6-6	0.04-0.11	0.0-2.9	0.5-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
Doublecreek-----	0-4	7-12	1.00-1.10	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	4-16	7-12	1.00-1.10	2-6	0.15-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-22	10-18	1.00-1.20	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.37	.43			
	22-40	10-18	1.20-1.40	0.6-2	0.09-0.21	0.0-2.9	0.5-1.0	.32	.37			
	40-61	10-18	1.20-1.40	0.6-2	0.08-0.21	0.0-2.9	0.0-0.5	.32	.37			
Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			
187: Limberjim-----	0-5	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	3	2	134
	5-15	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32			
	15-20	18-25	1.10-1.40	0.6-2	0.10-0.19	0.0-2.9	0.5-1.0	.32	.37			
	20-41	20-30	1.20-1.50	0.6-2	0.04-0.14	3.0-5.9	0.0-0.5	.24	.37			
	41-51	---	---	---	---	---	---	---	---			
188: Limberjim-----	0-5	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	3	2	134
	5-15	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32			
	15-20	18-25	1.10-1.40	0.6-2	0.10-0.19	0.0-2.9	0.5-1.0	.32	.37			
	20-41	20-30	1.20-1.50	0.6-2	0.04-0.14	3.0-5.9	0.0-0.5	.24	.37			
	41-51	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
189: Limberjim-----	0-5	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	3	2	134
	5-15	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32			
	15-20	18-25	1.10-1.40	0.6-2	0.10-0.19	0.0-2.9	0.5-1.0	.32	.37			
	20-41	20-30	1.20-1.50	0.6-2	0.04-0.14	3.0-5.9	0.0-0.5	.24	.37			
	41-51	---	---	---	---	---	---	---	---			
Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			
190: Limberjim-----	0-5	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	3	2	134
	5-15	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32			
	15-20	18-25	1.10-1.40	0.6-2	0.10-0.19	0.0-2.9	0.5-1.0	.32	.37			
	20-41	20-30	1.20-1.50	0.6-2	0.04-0.14	3.0-5.9	0.0-0.5	.24	.37			
	41-51	---	---	---	---	---	---	---	---			
Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			
191: Limberjim-----	0-5	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	3	2	134
	5-15	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32			
	15-20	18-25	1.10-1.40	0.6-2	0.10-0.19	0.0-2.9	0.5-1.0	.32	.37			
	20-41	20-30	1.20-1.50	0.6-2	0.04-0.14	3.0-5.9	0.0-0.5	.24	.37			
	41-51	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
191: Tamara-----	0-4	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-5.0	.37	.37	5	2	134
	4-15	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	15-30	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	30-51	20-35	1.30-1.50	0.2-0.6	0.13-0.20	0.0-2.9	0.0-2.0	.24	.28			
	51-60	25-35	1.30-1.50	0.2-0.6	0.12-0.21	0.0-2.9	0.0-1.0	.24	.28			
192: Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	7	38
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
193: Lookingglass-----	0-22	18-27	0.90-1.25	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.32	.32	4	6	48
	22-23	18-30	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.32	.32			
	23-42	35-50	1.30-1.45	0.0015-0.06	0.09-0.11	6.0-8.9	0.0-0.5	.28	.28			
	42-60	27-35	1.25-1.45	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.37	.37			
194: Lookingglass-----	0-22	18-27	0.90-1.25	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.32	.32	4	6	48
	22-23	18-30	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.32	.32			
	23-42	35-50	1.30-1.45	0.0015-0.06	0.09-0.11	6.0-8.9	0.0-0.5	.28	.28			
	42-60	27-35	1.25-1.45	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.37	.37			
195: Lookingglass, stony---	0-22	18-27	0.90-1.25	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.32	.32	4	7	38
	22-23	18-30	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.32	.32			
	23-42	35-50	1.30-1.45	0.0015-0.06	0.09-0.11	6.0-8.9	0.0-0.5	.28	.28			
	42-60	27-35	1.25-1.45	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.37	.37			
196: Lookingglass, cobbly--	0-22	18-27	0.90-1.25	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.32	.32	4	7	38
	22-23	18-30	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.32	.32			
	23-42	35-50	1.30-1.45	0.0015-0.06	0.09-0.11	6.0-8.9	0.0-0.5	.28	.28			
	42-60	27-35	1.25-1.45	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.37	.37			
Lookingglass-----	0-22	18-27	0.90-1.25	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.32	.32	4	6	48
	22-23	18-30	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.32	.32			
	23-42	35-50	1.30-1.45	0.0015-0.06	0.09-0.11	6.0-8.9	0.0-0.5	.28	.28			
	42-60	27-35	1.25-1.45	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.37	.37			
197: Lookingglass-----	0-22	18-27	0.90-1.25	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.32	.32	4	6	48
	22-23	18-30	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.32	.32			
	23-42	35-50	1.30-1.45	0.0015-0.06	0.09-0.11	6.0-8.9	0.0-0.5	.28	.28			
	42-60	27-35	1.25-1.45	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.37	.37			
Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
198: Lookingglass-----	0-22	18-27	0.90-1.25	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.32	.32	4	6	48
	22-23	18-30	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.32	.32			
	23-42	35-50	1.30-1.45	0.0015-0.06	0.09-0.11	6.0-8.9	0.0-0.5	.28	.28			
	42-60	27-35	1.25-1.45	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.37	.37			

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
198: Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
199: Lostine-----	0-12	10-18	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-4.0	.32	.32	5	5	56
	12-47	10-18	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37			
	47-60	10-30	1.10-1.30	0.6-6	0.07-0.21	0.0-2.9	0.5-1.0	.28	.37			
	60-65	10-15	1.10-1.30	2-20	0.03-0.11	0.0-2.9	0.0-0.5	.15	.28			
200: Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	8	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---	---			
Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Lawyer-----	0-4	20-27	1.15-1.35	0.6-2	0.13-0.16	0.0-2.9	4.0-6.0	.24	.37	3	7	38
	4-11	20-27	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.15	.32			
	11-23	30-35	1.25-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0	.10	.37			
	23-35	30-35	1.25-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0	.10	.37			
	35-44	35-50	1.15-1.40	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.10	.37			
	44-54	---	---	---	---	---	---	---	---			
201: Mallory-----	0-3	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43	2	8	0
	3-8	18-27	1.15-1.30	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.43			
	8-11	27-40	1.20-1.35	0.2-0.6	0.10-0.15	3.0-5.9	2.0-3.0	.15	.28			
	11-18	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	18-26	40-50	1.25-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	26-36	---	---	---	---	---	---	---	---			
Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
203: Matheny-----	0-4	18-25	1.15-1.35	0.6-2	0.19-0.22	3.0-5.9	3.0-6.0	.37	.43	3	6	48
	4-14	18-25	1.20-1.40	0.6-2	0.13-0.18	3.0-5.9	2.0-4.0	.24	.43			
	14-22	25-35	1.30-1.50	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.10	.37			
	22-44	18-30	1.30-1.50	0.6-2	0.09-0.13	3.0-5.9	0.5-1.0	.10	.37			
	44-57	---	---	---	---	---	---	---	---			
Linville-----	0-18	15-25	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	2.0-4.0	.24	.32	5	5	56
	18-38	15-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.37	.37			
	38-47	20-27	1.30-1.45	0.6-2	0.16-0.19	3.0-5.9	0.5-1.0	.24	.37			
	47-60	20-27	1.30-1.50	0.6-2	0.10-0.14	3.0-5.9	0.5-1.0	.20	.37			
Laufer-----	0-4	20-27	1.15-1.35	0.2-0.6	0.09-0.13	0.0-2.9	2.0-6.0	.10	.37	1	8	0
	4-8	35-40	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-3.0	.10	.28			
	8-16	35-45	1.30-1.50	0.2-0.6	0.05-0.10	6.0-8.9	1.0-2.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
204: Matterhorn-----	0-3	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.17	.24	2	5	56
	3-10	5-10	1.30-1.50	2-6	0.08-0.10	0.0-2.9	1.0-2.0	.15	.32			
	10-27	0-5	1.40-1.60	20-101	0.03-0.05	0.0-2.9	0.2-1.0	.05	.15			
	27-46	0-5	1.40-1.60	20-101	0.03-0.05	0.0-2.9	0.2-1.0	.05	.15			
	46-63	0-5	1.40-1.60	20-101	0.03-0.05	0.0-2.9	0.0-0.3	.05	.15			
205: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.20-0.24	0.0-2.9	3.0-7.0	.28	.28	4	6	48
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
206: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.20-0.24	0.0-2.9	3.0-7.0	.28	.28	4	6	48
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
207: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
208: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
209: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
210: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
211: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
212: Minam-----	0-19	5-15	1.00-1.30	0.6-2	0.20-0.24	0.0-2.9	3.0-7.0	.28	.28	4	6	48
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
Minam, gravelly-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
212: Endoaquepts-----	0-5	5-27	0.90-1.10	0.6-2	0.15-0.18	0.0-2.9	10-12	.15	.15	5	5	56
	5-21	5-27	1.10-1.25	0.6-2	0.15-0.18	0.0-2.9	1.0-4.0	.32	.32			
	21-42	5-30	1.10-1.30	0.2-2	0.17-0.18	0.0-2.9	1.0-3.0	.37	.37			
	42-56	15-35	1.25-1.40	0.2-2	0.12-0.17	3.0-5.9	0.5-2.0	.43	.37			
	56-62	25-35	1.25-1.35	0.2-2	0.11-0.17	3.0-5.9	0.5-1.0	.49	.43			
213: Minam, gravelly-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
Minam, stony-----	0-19	5-15	1.00-1.30	0.6-2	0.15-0.19	0.0-2.9	3.0-7.0	.24	.28	4	7	38
	19-35	18-35	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.32	.32			
	35-60	15-30	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
Endoaquepts-----	0-5	5-27	0.90-1.10	0.6-2	0.15-0.18	0.0-2.9	10-12	.15	.15	5	5	56
	5-21	5-27	1.10-1.25	0.6-2	0.15-0.18	0.0-2.9	1.0-4.0	.32	.32			
	21-42	5-30	1.10-1.30	0.2-2	0.17-0.18	0.0-2.9	1.0-3.0	.37	.37			
	42-56	15-35	1.25-1.40	0.2-2	0.12-0.17	3.0-5.9	0.5-2.0	.43	.37			
	56-62	25-35	1.25-1.35	0.2-2	0.11-0.17	3.0-5.9	0.5-1.0	.49	.43			
214: Mippon-----	0-3	10-20	1.10-1.30	0.6-2	0.15-0.20	0.0-2.9	1.0-3.0	.28	.28	2	5	56
	3-6	5-10	1.25-1.50	2-6	0.13-0.17	0.0-2.9	1.0-2.0	.32	.32			
	6-10	5-10	1.25-1.50	2-6	0.13-0.17	0.0-2.9	1.0-2.0	.32	.32			
	10-21	2-10	1.45-1.65	6-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.15			
	21-60	2-10	1.45-1.65	6-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.15			
215: Mountemily-----	0-4	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	3	2	134
	4-14	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.28	.43			
	14-29	20-25	1.25-1.50	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.10	.37			
	29-60	20-30	1.30-1.55	0.6-2	0.08-0.11	0.0-2.9	0.0-2.0	.10	.37			
Troutmeadows-----	0-3	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	2	2	134
	3-16	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.32	.32			
	16-30	10-18	1.20-1.35	0.6-2	0.06-0.11	0.0-2.9	2.0-4.0	.10	.37			
	30-40	---	---	---	---	---	---	---	---			
216: Mountemily-----	0-4	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	3	2	134
	4-14	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.28	.43			
	14-29	20-25	1.25-1.50	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.10	.37			
	29-60	20-30	1.30-1.55	0.6-2	0.08-0.11	0.0-2.9	0.0-2.0	.10	.37			
Troutmeadows-----	0-3	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	2	2	134
	3-16	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.32	.32			
	16-30	10-18	1.20-1.35	0.6-2	0.06-0.11	0.0-2.9	2.0-4.0	.10	.37			
	30-40	---	---	---	---	---	---	---	---			
217: Mountemily-----	0-4	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	3	2	134
	4-14	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.28	.43			
	14-29	20-25	1.25-1.50	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.10	.37			
	29-60	20-30	1.30-1.55	0.6-2	0.08-0.11	0.0-2.9	0.0-2.0	.10	.37			
Troutmeadows-----	0-3	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	2	2	134
	3-16	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.32	.32			
	16-30	10-18	1.20-1.35	0.6-2	0.06-0.11	0.0-2.9	2.0-4.0	.10	.37			
	30-40	---	---	---	---	---	---	---	---			
218: Mountemily-----	0-4	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	3	2	134
	4-14	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.28	.43			
	14-29	20-25	1.25-1.50	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.10	.37			
	29-60	20-30	1.30-1.55	0.6-2	0.08-0.11	0.0-2.9	0.0-2.0	.10	.37			



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
218: Troutmeadows-----	0-3	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	2	2	134
	3-16	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.32	.32			
	16-30	10-18	1.20-1.35	0.6-2	0.06-0.11	0.0-2.9	2.0-4.0	.10	.37			
	30-40	---	---	---	---	---	---	---	---			
Anatone, cold-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
219: Needhill-----	0-9	10-18	0.85-1.00	2-6	0.14-0.20	0.0-2.9	3.0-4.0	.32	.32	3	4	86
	9-20	10-18	0.85-1.10	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.32	.37			
	20-35	10-18	1.00-1.20	0.6-2	0.10-0.20	0.0-2.9	1.0-2.0	.32	.37			
	35-53	18-30	1.20-1.50	0.6-2	0.06-0.15	3.0-5.9	0.5-1.0	.24	.32			
	53-63	---	---	---	---	---	---	---	---			
Parsnip-----	0-6	18-25	1.20-1.35	0.6-2	0.30-0.35	0.0-2.9	2.0-3.0	.32	.37	1	6	48
	6-9	18-25	1.15-1.30	0.6-2	0.30-0.35	0.0-2.9	1.0-2.0	.43	.43			
	9-13	25-35	1.35-1.45	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.43	.43			
	13-23	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
220: Needhill-----	0-9	10-18	0.85-1.00	2-6	0.14-0.20	0.0-2.9	3.0-4.0	.32	.32	3	4	86
	9-20	10-18	0.85-1.10	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.32	.37			
	20-35	10-18	1.00-1.20	0.6-2	0.10-0.20	0.0-2.9	1.0-2.0	.32	.37			
	35-53	18-30	1.20-1.50	0.6-2	0.06-0.15	3.0-5.9	0.5-1.0	.24	.32			
	53-63	---	---	---	---	---	---	---	---			
Zumwalt-----	0-7	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	2	5	56
	7-9	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.32	.32			
	9-21	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	21-37	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	37-47	---	---	---	---	---	---	---	---			
221: Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
222: Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
223: Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
224: Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
224: Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
225: Parsnip-----	0-6	18-25	1.20-1.35	0.6-2	0.30-0.35	0.0-2.9	2.0-3.0	.32	.37	1	5	56
	6-9	18-25	1.15-1.30	0.6-2	0.30-0.35	0.0-2.9	1.0-2.0	.43	.43			
	9-13	25-35	1.35-1.45	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.43	.43			
	13-23	---	---	---	---	---	---	---	---			
226: Parsnip-----	0-6	18-25	1.20-1.35	0.6-2	0.30-0.35	0.0-2.9	2.0-3.0	.32	.37	1	6	48
	6-9	18-25	1.15-1.30	0.6-2	0.30-0.35	0.0-2.9	1.0-2.0	.43	.43			
	9-13	25-35	1.35-1.45	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.43	.43			
	13-23	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
227: Phys-----	0-10	18-27	1.20-1.30	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.24	.28	5	7	38
	10-16	20-30	1.30-1.40	0.6-2	0.10-0.15	1.0-5.9	0.5-1.0	.32	.37			
	16-23	27-35	1.30-1.40	0.2-0.6	0.09-0.15	3.0-5.9	0.5-1.0	.24	.37			
	23-60	15-25	1.30-1.50	2-6	0.04-0.09	0.0-2.9	0.0-0.5	.20	.32			
228: Phys-----	0-10	18-27	1.20-1.30	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.28	.32	5	7	38
	10-16	20-30	1.30-1.40	0.6-2	0.10-0.15	1.0-5.9	0.5-1.0	.32	.37			
	16-23	27-35	1.30-1.40	0.2-0.6	0.09-0.15	3.0-5.9	0.5-1.0	.24	.37			
	23-60	15-25	1.30-1.50	2-6	0.04-0.09	0.0-2.9	0.0-0.5	.20	.32			
Doublecreek-----	0-4	7-12	1.00-1.10	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	4-16	7-12	1.00-1.10	2-6	0.15-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-22	10-18	1.00-1.20	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.37	.43			
	22-40	10-18	1.20-1.40	0.6-2	0.09-0.21	0.0-2.9	0.5-1.0	.32	.37			
	40-61	10-18	1.20-1.40	0.6-2	0.08-0.21	0.0-2.9	0.0-0.5	.32	.37			
Collegecreek-----	0-8	5-10	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.20	.20	5	2	134
	8-24	5-10	0.65-0.85	2-6	0.15-0.21	0.0-2.9	0.5-2.0	.20	.20			
	24-28	5-10	0.65-0.85	2-6	0.17-0.21	0.0-2.9	0.0-2.0	.24	.24			
	28-41	10-15	1.45-1.60	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.32	.37			
	41-61	10-18	1.45-1.70	0.6-2	0.10-0.21	0.0-2.9	0.5-2.0	.32	.37			
229: Phys-----	0-10	18-27	1.20-1.30	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.28	.32	5	7	38
	10-16	20-30	1.30-1.40	0.6-2	0.10-0.15	1.0-5.9	0.5-1.0	.32	.37			
	16-23	27-35	1.30-1.40	0.2-0.6	0.09-0.15	3.0-5.9	0.5-1.0	.24	.37			
	23-60	15-25	1.30-1.50	2-6	0.04-0.09	0.0-2.9	0.0-0.5	.20	.32			
Doublecreek-----	0-4	7-12	1.00-1.10	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	4-16	7-12	1.00-1.10	2-6	0.15-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-22	10-18	1.00-1.20	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.37	.43			
	22-40	10-18	1.20-1.40	0.6-2	0.09-0.21	0.0-2.9	0.5-1.0	.32	.37			
	40-61	10-18	1.20-1.40	0.6-2	0.08-0.21	0.0-2.9	0.0-0.5	.32	.37			
Collegecreek-----	0-8	5-10	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-4.0	.20	.20	5	2	134
	8-24	5-10	0.65-0.85	2-6	0.15-0.21	0.0-2.9	0.5-2.0	.20	.20			
	24-28	5-10	0.65-0.85	2-6	0.17-0.21	0.0-2.9	0.0-2.0	.24	.24			
	28-41	10-15	1.45-1.60	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.32	.37			
	41-61	10-18	1.45-1.70	0.6-2	0.10-0.21	0.0-2.9	0.5-2.0	.32	.37			
230: Powwatka-----	0-14	18-25	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.28	.28	2	5	56
	14-24	27-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.24	.24			
	24-34	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
231: Powwatka-----	0-14	18-25	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.28	.28	2	5	56
	14-24	27-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.24	.24			
	24-34	---	---	---	---	---	---	---	---			
232: Powwatka-----	0-14	18-25	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.28	.28	2	5	56
	14-24	27-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.24	.24			
	24-34	---	---	---	---	---	---	---	---			
233: Powwatka-----	0-14	18-25	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.28	.28	2	5	56
	14-24	27-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.24	.24			
	24-34	---	---	---	---	---	---	---	---			
234: Puzzlecreek-----	0-9	5-15	0.75-0.95	2-6	0.08-0.10	0.0-2.9	2.0-8.0	.10	.32	2	4	86
	9-13	5-15	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.10	.32			
	13-39	10-15	1.20-1.40	0.6-2	0.06-0.10	0.0-2.9	0.5-2.0	.10	.32			
	39-49	---	---	---	---	---	---	---	---			
235: Ramo-----	0-18	27-35	1.10-1.30	0.2-2	0.19-0.21	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	18-41	35-45	1.20-1.40	0.06-0.2	0.06-0.10	6.0-8.9	0.5-1.0	.24	.28			
	41-65	30-40	1.25-1.40	0.2-0.6	0.10-0.14	3.0-5.9	0.0-0.5	.24	.32			
236: Ramo-----	0-18	27-35	1.10-1.30	0.2-2	0.19-0.21	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	18-41	35-45	1.20-1.40	0.06-0.2	0.06-0.10	6.0-8.9	0.5-1.0	.24	.28			
	41-65	30-40	1.25-1.40	0.2-0.6	0.10-0.14	3.0-5.9	0.0-0.5	.24	.32			
237: Ramo-----	0-18	27-35	1.10-1.30	0.2-2	0.19-0.21	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	18-41	35-45	1.20-1.40	0.06-0.2	0.06-0.10	6.0-8.9	0.5-1.0	.24	.28			
	41-65	30-40	1.25-1.40	0.2-0.6	0.10-0.14	3.0-5.9	0.0-0.5	.24	.32			
238: Ramo-----	0-18	27-35	1.10-1.30	0.2-2	0.19-0.21	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	18-41	35-45	1.20-1.40	0.06-0.2	0.06-0.10	6.0-8.9	0.5-1.0	.24	.28			
	41-65	30-40	1.25-1.40	0.2-0.6	0.10-0.14	3.0-5.9	0.0-0.5	.24	.32			
Conley-----	0-14	27-35	1.10-1.35	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.32	.32	3	7	38
	14-23	18-30	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			
	23-40	40-50	1.35-1.45	0.0015-0.06	0.14-0.16	6.0-8.9	0.0-0.5	.24	.24			
	40-60	27-35	1.25-1.35	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.37			
239: Reavis-----	0-15	18-27	1.10-1.20	0.6-2	0.16-0.21	0.0-2.9	3.0-5.0	.37	.37	5	6	48
	15-34	18-27	1.20-1.40	0.6-2	0.16-0.21	0.0-2.9	1.0-3.0	.37	.37			
	34-41	18-27	1.20-1.40	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.37	.43			
	41-60	15-25	1.30-1.50	2-6	0.08-0.12	0.0-2.9	0.0-0.5	.17	.43			
240: Redmount-----	0-12	10-18	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32	4	5	56
	12-20	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	20-32	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	32-60	5-10	1.20-1.40	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.10	.20			
241: Redmount-----	0-12	10-18	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32	4	5	56
	12-20	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	20-32	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	32-60	5-10	1.20-1.40	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.10	.20			
242: Redmount-----	0-12	10-18	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32	4	6	48
	12-20	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	20-32	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	32-60	5-10	1.20-1.40	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.10	.20			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
243: Redmount-----	0-12	10-18	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32	4	5	56
	12-20	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	20-32	10-18	1.10-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.32	.32			
	32-60	5-10	1.20-1.40	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.10	.20			
Cheval-----	0-15	10-18	1.10-1.20	0.6-2	0.16-0.21	0.0-2.9	4.0-6.0	.32	.32	3	5	56
	15-24	10-20	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-3.0	.32	.37			
	24-31	10-20	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-3.0	.32	.37			
	31-60	5-15	1.30-1.50	20-101	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
244: Riverwash-----	0-60	---	---	---	---	---	---	---	---	---	---	---
245: Rock outcrop, limestone-----	0-60	---	---	---	---	---	---	---	---	---	---	---
246: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Fivebit-----	0-4	10-20	1.40-1.60	2-6	0.06-0.08	0.0-2.9	2.0-4.0	.05	.10	1	5	56
	4-9	18-25	1.35-1.55	0.2-0.6	0.06-0.11	0.0-2.9	1.0-3.0	.28	.37			
	9-15	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	15-19	18-27	1.40-1.60	0.2-0.6	0.04-0.08	0.0-2.9	0.0-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
247: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
248: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
249: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
249: Cherrycreek-----	0-9	5-15	0.85-1.00	2-6	0.09-0.16	0.0-2.9	8.0-12	.20	.28	3	6	48
	9-28	12-18	0.85-1.00	2-6	0.05-0.16	0.0-2.9	6.0-8.0	.17	.28			
	28-43	12-18	1.00-1.20	2-6	0.04-0.15	0.0-2.9	2.0-4.0	.10	.32			
	43-53	18-25	1.20-1.40	0.6-2	0.03-0.14	0.0-2.9	0.5-1.0	.10	.37			
	53-63	---	---	---	---	---	---	---	---			
250: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	7	38
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
251: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			
Dixiejett-----	0-6	10-25	1.20-1.40	0.6-2	0.09-0.15	0.0-2.9	2.0-5.0	.15	.28	3	5	56
	6-10	10-25	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	2.0-5.0	.10	.32			
	10-18	25-35	1.30-1.50	0.2-0.6	0.04-0.10	3.0-5.9	1.0-2.0	.05	.24			
	18-27	25-35	1.30-1.50	0.2-0.6	0.04-0.10	3.0-5.9	1.0-2.0	.05	.24			
	27-43	20-30	1.20-1.40	0.2-0.6	0.04-0.10	0.0-2.9	0.5-1.0	.05	.32			
	43-53	---	---	---	---	---	---	---	---			
252: Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	8	0
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Copperfield-----	0-4	10-18	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	3.0-5.0	.24	.37	5	8	0
	4-22	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-3.0	.24	.37			
	22-42	27-35	1.20-1.30	0.2-0.6	0.05-0.13	3.0-5.9	1.0-2.0	.20	.37			
	42-60	35-50	1.20-1.40	0.06-0.2	0.04-0.10	6.0-8.9	0.5-1.0	.17	.37			
253: Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Licksillet-----	0-7	10-20	1.45-1.55	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.32	.43	1	7	38
	7-19	18-27	1.45-1.65	0.6-6	0.04-0.11	0.0-2.9	0.5-1.0	.24	.37			
	19-29	---	---	---	---	---	---	---	---			
254: Rondowa-----	0-10	10-18	1.00-1.20	0.6-2	0.18-0.21	0.0-2.9	3.0-4.0	.28	.28	5	5	56
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
255: Rondowa-----	0-10	10-18	1.00-1.20	0.6-2	0.18-0.21	0.0-2.9	3.0-4.0	.28	.28	5	5	56
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
256: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	7	38
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
257: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	7	38
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
258: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	7	38
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
259: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	7	38
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
260: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	7	38
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
261: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	5	56
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
262: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	5	56
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
263: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	5	56
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
264: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	5	56
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
265: Rondowa-----	0-10	10-18	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	3.0-4.0	.24	.28	5	5	56
	10-26	10-18	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.32			
	26-60	5-15	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.15	.28			
266: Rubble land-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
267: Sag-----	0-4	18-25	1.10-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.43	.43	5	6	48
	4-30	18-25	1.10-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.43	.43			
	30-37	20-35	1.30-1.45	0.2-0.6	0.16-0.18	3.0-5.9	1.0-3.0	.37	.37			
	37-47	30-40	1.30-1.50	0.2-0.6	0.12-0.18	3.0-5.9	0.5-1.0	.32	.32			
	47-61	30-40	1.30-1.50	0.06-0.2	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
268: Sag-----	0-4	18-25	1.10-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.43	.43	5	6	48
	4-30	18-25	1.10-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.43	.43			
	30-37	20-35	1.30-1.45	0.2-0.6	0.16-0.18	3.0-5.9	1.0-3.0	.37	.37			
	37-47	30-40	1.30-1.50	0.2-0.6	0.12-0.18	3.0-5.9	0.5-1.0	.32	.32			
	47-61	30-40	1.30-1.50	0.06-0.2	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
269: Sag-----	0-4	18-25	1.10-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.43	.43	5	6	48
	4-30	18-25	1.10-1.30	0.6-2	0.17-0.19	0.0-2.9	2.0-4.0	.43	.43			
	30-37	20-35	1.30-1.45	0.2-0.6	0.16-0.18	3.0-5.9	1.0-3.0	.37	.37			
	37-47	30-40	1.30-1.50	0.2-0.6	0.12-0.18	3.0-5.9	0.5-1.0	.32	.32			
	47-61	30-40	1.30-1.50	0.06-0.2	0.12-0.18	3.0-5.9	0.0-0.5	.32	.32			
270: Schrier-----	0-23	18-25	1.20-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	23-34	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	34-43	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	43-60	20-30	1.30-1.40	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0	.28	.43			
271: Schrier-----	0-23	18-25	1.20-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	23-34	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	34-43	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	43-60	20-30	1.30-1.40	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0	.28	.43			
Almota-----	0-8	10-20	1.10-1.25	0.6-2	0.17-0.18	0.0-2.9	2.0-3.0	.43	.43	2	5	56
	8-19	20-27	1.25-1.50	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.32	.32			
	19-29	15-25	1.20-1.45	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.37	.43			
	29-38	15-25	1.20-1.45	0.6-2	0.11-0.18	0.0-2.9	0.5-1.0	.43	.49			
	38-48	---	---	---	---	---	---	---	---			
272: Schrier-----	0-23	18-25	1.20-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	23-34	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	34-43	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	43-60	20-30	1.30-1.40	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0	.28	.43			
Almota-----	0-8	10-20	1.10-1.25	0.6-2	0.17-0.18	0.0-2.9	2.0-3.0	.43	.43	2	5	56
	8-19	20-27	1.25-1.50	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.32	.32			
	19-29	15-25	1.20-1.45	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.37	.43			
	29-38	15-25	1.20-1.45	0.6-2	0.11-0.18	0.0-2.9	0.5-1.0	.43	.49			
	38-48	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
273: Schuelke-----	0-5	18-27	1.10-1.25	0.6-2	0.17-0.19	3.0-5.9	1.0-3.0	.43	.43	2	6	48
	5-12	27-35	1.40-1.55	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.20	.37			
	12-22	25-35	1.50-1.60	0.6-2	0.08-0.13	3.0-5.9	0.5-1.0	.17	.32			
	22-33	25-35	1.50-1.60	0.6-2	0.08-0.13	3.0-5.9	0.5-1.0	.17	.32			
	33-43	---	---	---	---	---	---	---	---			
Schrier-----	0-23	18-25	1.20-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	23-34	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	34-43	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	43-60	20-30	1.30-1.40	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0	.28	.43			
Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	8	0
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			
274: Silverlake-----	0-8	18-25	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32	3	6	48
	8-12	18-25	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.32	.32			
	12-18	35-45	1.20-1.30	0.06-0.2	0.10-0.18	6.0-8.9	1.0-2.0	.28	.32			
	18-24	35-45	1.20-1.30	0.06-0.2	0.10-0.18	6.0-8.9	1.0-2.0	.28	.32			
	24-31	25-35	1.20-1.40	0.2-0.6	0.09-0.16	3.0-5.9	0.5-1.0	.37	.43			
	31-42	25-35	1.20-1.40	0.2-0.6	0.09-0.16	3.0-5.9	0.5-1.0	.37	.43			
	42-57	---	---	0.0015-0.06	0.00-0.00	---	---	---	---			
	57-63	5-10	1.50-1.60	6-20	0.00-0.00	0.0-2.9	0.2-0.5	.05	.15			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
275: Slicklog-----	0-6	5-15	0.85-1.00	2-6	0.21-0.27	0.0-2.9	3.0-5.0	.20	.37	5	3	86
	6-16	5-15	0.85-1.00	2-6	0.14-0.19	0.0-2.9	2.0-4.0	.15	.28			
	16-22	10-18	0.85-1.00	0.6-2	0.06-0.19	0.0-2.9	1.0-2.0	.15	.28			
	22-49	10-18	0.85-1.00	0.6-2	0.06-0.13	0.0-2.9	0.5-1.0	.15	.28			
	49-60	5-15	1.35-1.60	2-20	0.03-0.08	0.0-2.9	0.0-0.5	.05	.20			
276: Slicklog-----	0-6	5-15	0.85-1.00	2-6	0.21-0.27	0.0-2.9	3.0-5.0	.20	.37	5	3	86
	6-16	5-15	0.85-1.00	2-6	0.14-0.19	0.0-2.9	2.0-4.0	.15	.28			
	16-22	10-18	0.85-1.00	0.6-2	0.06-0.19	0.0-2.9	1.0-2.0	.15	.28			
	22-49	10-18	0.85-1.00	0.6-2	0.06-0.13	0.0-2.9	0.5-1.0	.15	.28			
	49-60	5-15	1.35-1.60	2-20	0.03-0.08	0.0-2.9	0.0-0.5	.05	.20			
Eastpine-----	0-14	5-15	0.75-0.95	2-6	0.04-0.08	0.0-2.9	1.0-4.0	.15	.37	2	6	48
	14-26	10-18	1.40-1.60	0.6-2	0.03-0.10	0.0-2.9	0.5-2.0	.05	.37			
	26-38	10-18	1.40-1.60	0.6-2	0.03-0.10	0.0-2.9	0.5-1.0	.05	.37			
	38-48	---	---	---	---	---	---	---	---			
277: Slicklog-----	0-6	5-15	0.85-1.00	2-6	0.21-0.27	0.0-2.9	3.0-5.0	.20	.37	5	3	86
	6-16	5-15	0.85-1.00	2-6	0.14-0.19	0.0-2.9	2.0-4.0	.15	.28			
	16-22	10-18	0.85-1.00	0.6-2	0.06-0.19	0.0-2.9	1.0-2.0	.15	.28			
	22-49	10-18	0.85-1.00	0.6-2	0.06-0.13	0.0-2.9	0.5-1.0	.15	.28			
	49-60	5-15	1.35-1.60	2-20	0.03-0.08	0.0-2.9	0.0-0.5	.05	.20			
Eastpine-----	0-14	5-15	0.75-0.95	2-6	0.04-0.08	0.0-2.9	1.0-4.0	.15	.37	2	6	48
	14-26	10-18	1.40-1.60	0.6-2	0.03-0.10	0.0-2.9	0.5-2.0	.05	.37			
	26-38	10-18	1.40-1.60	0.6-2	0.03-0.10	0.0-2.9	0.5-1.0	.05	.37			
	38-48	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
278: Slicklog-----	0-6	5-15	0.85-1.00	2-6	0.21-0.27	0.0-2.9	3.0-5.0	.20	.37	5	3	86
	6-16	5-15	0.85-1.00	2-6	0.14-0.19	0.0-2.9	2.0-4.0	.15	.28			
	16-22	10-18	0.85-1.00	0.6-2	0.06-0.19	0.0-2.9	1.0-2.0	.15	.28			
	22-49	10-18	0.85-1.00	0.6-2	0.06-0.13	0.0-2.9	0.5-1.0	.15	.28			
	49-60	5-15	1.35-1.60	2-20	0.03-0.08	0.0-2.9	0.0-0.5	.05	.20			
Wintercanyon-----	0-9	10-18	1.10-1.40	0.6-2	0.06-0.11	0.0-2.9	3.0-8.0	.10	.37	1	7	38
	9-18	10-20	1.20-1.40	0.6-2	0.04-0.11	0.0-2.9	0.5-3.0	.10	.37			
	18-28	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
279: Snell-----	0-4	27-35	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	6	48
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
280: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
281: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
281: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
282: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
24-34	---	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
283: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
24-34	---	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
284: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	6	48
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.40	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
24-34	---	---	---	---	---	---	---	---	---			
Harlow-----	0-4	18-27	1.10-1.20	0.6-2	0.22-0.30	0.0-2.9	2.0-5.0	.32	.32	1	6	48
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
285: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
24-34	---	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Immaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
24-34	---	---	---	---	---	---	---	---	---			
286: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
24-34	---	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
286: Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
287: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
288: Snell-----	0-4	20-27	1.25-1.35	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.24	.37	2	8	0
	4-9	27-35	1.25-1.35	0.2-0.6	0.16-0.20	3.0-5.9	1.0-3.0	.24	.37			
	9-18	35-50	1.30-1.40	0.2-0.6	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	18-24	35-50	1.30-1.50	0.2-0.6	0.06-0.10	6.0-8.9	1.0-2.0	.10	.32			
	24-34	---	---	---	---	---	---	---	---			
Imnaha-----	0-5	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	3.0-6.0	.17	.24	2	5	56
	5-17	10-18	1.00-1.20	2-6	0.13-0.32	0.0-2.9	2.0-4.0	.20	.28			
	17-21	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-2.0	.24	.32			
	21-24	18-35	1.20-1.40	0.6-2	0.05-0.14	3.0-5.9	0.5-1.0	.24	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
289: Snow-----	0-18	15-20	1.20-1.30	0.6-2	0.20-0.22	0.0-2.9	3.0-5.0	.32	.32	5	5	56
	18-36	18-22	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37			
	36-60	18-27	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.43	.43			
290: Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
291: Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
292: Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
293: Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
294: Sopher-----	0-2	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	3	6	48
	2-8	15-25	1.10-1.25	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.20	.24			
	8-18	20-30	1.25-1.40	0.2-2	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	18-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	24-44	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.15	.20			
	44-54	---	---	---	---	---	---	---	---			
Gwinly-----	0-4	18-27	1.10-1.30	0.6-2	0.08-0.13	0.0-2.9	2.0-4.0	.17	.32	1	8	0
	4-10	25-40	1.15-1.35	0.2-0.6	0.08-0.13	3.0-5.9	1.0-2.0	.15	.37			
	10-17	40-50	1.20-1.40	0.06-0.2	0.06-0.11	6.0-8.9	1.0-2.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
295: Sturgill-----	0-8	18-27	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	6.0-10	.32	.32	5	6	48
	8-23	18-35	1.10-1.30	0.2-0.6	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37			
	23-38	18-35	1.00-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37			
	38-44	18-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	0.5-3.0	.37	.37			
	44-60	18-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	0.5-3.0	.37	.37			
296: Sturgill-----	0-8	18-27	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	6.0-10	.32	.32	5	6	48
	8-23	18-35	1.10-1.30	0.2-0.6	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37			
	23-38	18-35	1.00-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37			
	38-44	18-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	0.5-3.0	.37	.37			
	44-60	18-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	0.5-3.0	.37	.37			
Eggleson-----	0-3	10-15	1.40-1.50	0.6-2	0.10-0.15	0.0-2.9	2.0-3.0	.20	.28	5	6	48
	3-10	5-10	1.45-1.60	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28			
	10-17	0-5	1.50-1.70	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
	17-30	0-5	1.50-1.70	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
	30-60	0-5	1.50-1.70	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.17			
297: Sweitberg-----	0-18	18-27	1.20-1.30	0.6-2	0.19-0.21	3.0-5.9	3.0-6.0	.32	.32	2	6	48
	18-20	35-55	1.25-1.45	0.06-0.2	0.15-0.20	6.0-8.9	1.0-3.0	.24	.28			
	20-29	35-55	1.25-1.45	0.06-0.2	0.15-0.20	6.0-8.9	1.0-3.0	.24	.28			
	29-35	40-55	1.30-1.45	0.06-0.2	0.13-0.17	6.0-8.9	1.0-2.0	.10	.24			
	35-45	---	---	---	---	---	---	---	---			
298: Sweitberg-----	0-18	18-27	1.20-1.30	0.6-2	0.19-0.21	3.0-5.9	3.0-6.0	.32	.32	2	6	48
	18-20	35-55	1.25-1.45	0.06-0.2	0.15-0.20	6.0-8.9	1.0-3.0	.24	.28			
	20-29	35-55	1.25-1.45	0.06-0.2	0.15-0.20	6.0-8.9	1.0-3.0	.24	.28			
	29-35	40-55	1.30-1.45	0.06-0.2	0.13-0.17	6.0-8.9	1.0-2.0	.10	.24			
	35-45	---	---	---	---	---	---	---	---			
299: Sweiting-----	0-8	20-27	1.15-1.35	0.6-2	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37	2	6	48
	8-13	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	13-22	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	22-32	35-50	1.30-1.50	0.06-0.2	0.12-0.16	6.0-8.9	1.0-2.0	.10	.28			
	32-42	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
300: Sweiting-----	0-8	20-27	1.15-1.35	0.6-2	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37	2	6	48
	8-13	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	13-22	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	22-32	35-50	1.30-1.50	0.06-0.2	0.12-0.16	6.0-8.9	1.0-2.0	.10	.28			
	32-42	---	---	---	---	---	---	---	---			
301: Sweiting-----	0-8	20-27	1.15-1.35	0.6-2	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37	2	6	48
	8-13	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	13-22	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	22-32	35-50	1.30-1.50	0.06-0.2	0.12-0.16	6.0-8.9	1.0-2.0	.10	.28			
	32-42	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
302: Sweiting-----	0-8	20-27	1.15-1.35	0.6-2	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37	2	6	48
	8-13	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	13-22	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	22-32	35-50	1.30-1.50	0.06-0.2	0.12-0.16	6.0-8.9	1.0-2.0	.10	.28			
	32-42	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
303: Sweiting-----	0-8	20-27	1.15-1.35	0.6-2	0.19-0.21	3.0-5.9	3.0-6.0	.37	.37	2	6	48
	8-13	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	13-22	35-45	1.25-1.45	0.2-0.6	0.16-0.21	6.0-8.9	1.0-2.0	.32	.32			
	22-32	35-50	1.30-1.50	0.06-0.2	0.12-0.16	6.0-8.9	1.0-2.0	.10	.28			
	32-42	---	---	---	---	---	---	---	---			
Klicker-----	0-3	18-27	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	2.0-4.0	.24	.32	2	6	48
	3-10	18-27	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.10	.32			
	10-18	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
	18-24	27-35	1.25-1.40	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.32			
24-34	---	---	---	---	---	---	---	---				
304: Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			
305: Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			
Anatone-----	0-3	15-25	1.10-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.15	.49	1	8	0
	3-6	15-25	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.10	.49			
	6-12	20-30	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.55			
	12-22	---	---	---	---	---	---	---	---			
306: Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
306: Lowerbluff-----	0-6	10-15	0.75-0.95	2-6	0.20-0.35	0.0-2.9	6.0-8.0	.28	.28	1	2	134
	6-15	10-18	0.85-1.00	2-6	0.19-0.35	0.0-2.9	1.0-4.0	.28	.32			
	15-25	---	---	---	---	---	---	---	---			
307: Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			
Tamara-----	0-4	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-5.0	.37	.37	5	2	134
	4-15	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	15-30	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	30-51	20-35	1.30-1.50	0.2-0.6	0.13-0.20	0.0-2.9	0.0-2.0	.24	.28			
	51-60	25-35	1.30-1.50	0.2-0.6	0.12-0.21	0.0-2.9	0.0-1.0	.24	.28			
308: Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			
Tamara-----	0-4	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-5.0	.37	.37	5	2	134
	4-15	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	15-30	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	30-51	20-35	1.30-1.50	0.2-0.6	0.13-0.20	0.0-2.9	0.0-2.0	.24	.28			
	51-60	25-35	1.30-1.50	0.2-0.6	0.12-0.21	0.0-2.9	0.0-1.0	.24	.28			
309: Tamara-----	0-4	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-5.0	.37	.37	5	2	134
	4-15	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	15-30	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	30-51	20-35	1.30-1.50	0.2-0.6	0.13-0.20	0.0-2.9	0.0-2.0	.24	.28			
	51-60	25-35	1.30-1.50	0.2-0.6	0.12-0.21	0.0-2.9	0.0-1.0	.24	.28			
Sherod-----	0-5	20-27	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	3.0-4.0	.32	.32	1	6	48
	5-8	25-35	1.25-1.40	0.2-0.6	0.18-0.21	3.0-5.9	2.0-3.0	.28	.28			
	8-17	25-35	1.30-1.45	0.2-0.6	0.10-0.19	3.0-5.9	1.0-2.0	.32	.28			
	17-19	40-50	1.35-1.50	0.06-0.2	0.05-0.11	6.0-8.9	0.0-1.0	.32	.24			
	19-29	---	---	---	---	---	---	---	---			
310: Tamara-----	0-4	5-15	0.65-0.85	2-6	0.24-0.38	0.0-2.9	1.0-5.0	.37	.37	5	2	134
	4-15	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	15-30	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.43	.43			
	30-51	20-35	1.30-1.50	0.2-0.6	0.13-0.20	0.0-2.9	0.0-2.0	.24	.28			
	51-60	25-35	1.30-1.50	0.2-0.6	0.12-0.21	0.0-2.9	0.0-1.0	.24	.28			
Syrupcreek-----	0-3	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	2.0-4.0	.32	.32	2	2	134
	3-14	5-15	0.65-0.85	2-6	0.23-0.34	0.0-2.9	1.0-2.0	.32	.32			
	14-22	18-25	1.10-1.40	0.6-2	0.04-0.15	0.0-2.9	0.5-1.0	.17	.37			
	22-28	20-30	1.20-1.50	0.6-2	0.04-0.15	3.0-5.9	0.0-0.5	.17	.37			
	28-38	---	---	---	---	---	---	---	---			
311: Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	7	38
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
311: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
312: Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Lowerbluff-----	0-6	10-15	0.75-0.95	2-6	0.20-0.35	0.0-2.9	6.0-8.0	.28	.28	1	2	134
	6-15	10-18	0.85-1.00	2-6	0.19-0.35	0.0-2.9	1.0-4.0	.28	.32			
	15-25	---	---	---	---	---	---	---	---			
313: Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
314: Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
315: Tannahill-----	0-4	15-27	1.40-1.50	0.6-2	0.07-0.14	0.0-2.9	2.0-4.0	.15	.32	3	7	38
	4-10	15-27	1.40-1.50	0.6-2	0.07-0.14	0.0-2.9	2.0-4.0	.15	.32			
	10-16	20-35	1.40-1.50	0.2-0.6	0.05-0.12	3.0-5.9	0.5-2.0	.10	.37			
	16-29	20-35	1.40-1.50	0.6-2	0.05-0.09	3.0-5.9	0.5-2.0	.10	.37			
	29-41	18-27	1.40-1.50	0.6-2	0.05-0.13	0.0-2.9	0.0-1.0	.10	.37			
	41-48	18-27	1.40-1.50	0.6-2	0.05-0.13	0.0-2.9	0.0-1.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
Schrier-----	0-23	18-25	1.20-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	23-34	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	34-43	20-30	1.25-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
	43-60	20-30	1.30-1.40	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0	.28	.43			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
320: Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
321: Threebuck-----	0-4	5-15	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-5.0	.24	.24	3	2	134
	4-14	15-25	0.80-0.90	0.6-2	0.21-0.29	0.0-2.9	1.0-3.0	.28	.32			
	14-25	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	25-36	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	36-47	35-50	1.30-1.55	0.06-0.2	0.08-0.12	6.0-8.9	1.0-2.0	.17	.28			
	47-57	---	---	---	---	---	---	---	---			
Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
322: Threebuck-----	0-4	5-15	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-5.0	.24	.24	3	2	134
	4-14	15-25	0.80-0.90	0.6-2	0.21-0.29	0.0-2.9	1.0-3.0	.28	.32			
	14-25	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	25-36	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	36-47	35-50	1.30-1.55	0.06-0.2	0.08-0.12	6.0-8.9	1.0-2.0	.17	.28			
	47-57	---	---	---	---	---	---	---	---			
Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
323: Threebuck-----	0-4	5-15	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-5.0	.24	.24	3	2	134
	4-14	15-25	0.80-0.90	0.6-2	0.21-0.29	0.0-2.9	1.0-3.0	.28	.32			
	14-25	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	25-36	30-45	1.30-1.55	0.06-0.2	0.09-0.13	3.0-5.9	1.0-3.0	.20	.32			
	36-47	35-50	1.30-1.55	0.06-0.2	0.08-0.12	6.0-8.9	1.0-2.0	.17	.28			
	47-57	---	---	---	---	---	---	---	---			
Tamarackcanyon-----	0-4	10-25	0.80-0.90	0.6-2	0.25-0.35	0.0-2.9	2.0-3.0	.24	.24	2	4	86
	4-9	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	9-13	25-35	1.00-1.25	0.2-0.6	0.15-0.19	3.0-5.9	2.0-3.0	.28	.32			
	13-25	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.32			
	25-38	35-50	1.35-1.50	0.06-0.2	0.06-0.13	6.0-8.9	0.5-1.0	.20	.28			
	38-48	---	---	---	---	---	---	---	---			
Linecreek-----	0-9	8-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	6.0-8.0	.10	.17	5	7	38
	9-22	5-15	0.85-1.00	6-20	0.09-0.32	0.0-2.9	1.0-3.0	.17	.28			
	22-35	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	35-50	5-10	1.00-1.20	6-20	0.09-0.32	0.0-2.9	0.5-1.0	.24	.37			
	50-61	15-25	1.20-1.40	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.37			
324: Tippett-----	0-10	27-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	3.0-5.0	.32	.32	3	6	48
	10-14	25-30	1.20-1.35	0.2-0.6	0.19-0.21	3.0-5.9	2.0-3.0	.32	.32			
	14-16	20-25	1.25-1.30	0.6-2	0.13-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-30	40-50	1.30-1.45	0.06-0.2	0.19-0.21	6.0-8.9	1.0-2.0	.28	.28			
	30-51	45-55	1.35-1.45	0.0015-0.06	0.14-0.16	6.0-8.9	1.0-2.0	.37	.37			
	51-60	45-55	1.35-1.45	0.0015-0.06	0.14-0.16	6.0-8.9	1.0-2.0	.37	.37			



Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
324: Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
325: Tippett-----	0-10	27-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	3.0-5.0	.32	.32	3	6	48
	10-14	25-30	1.20-1.35	0.2-0.6	0.19-0.21	3.0-5.9	2.0-3.0	.32	.32			
	14-16	20-25	1.25-1.30	0.6-2	0.13-0.21	0.0-2.9	1.0-3.0	.37	.37			
	16-30	40-50	1.30-1.45	0.06-0.2	0.19-0.21	6.0-8.9	1.0-2.0	.28	.28			
	30-51	45-55	1.35-1.45	0.0015-0.06	0.14-0.16	6.0-8.9	1.0-2.0	.37	.37			
	51-60	45-55	1.35-1.45	0.0015-0.06	0.14-0.16	6.0-8.9	1.0-2.0	.37	.37			
Zumwalt-----	0-7	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	2	5	56
	7-9	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.32	.32			
	9-21	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	21-37	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	37-47	---	---	---	---	---	---	---	---			
326: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
327: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
328: Tolo, fan-----	0-26	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	26-37	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	37-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.37	.49			
329: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
330: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
331: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
332: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
Getaway-----	0-6	18-27	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-9.0	.20	.32	3	6	48
	6-13	18-27	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	2.0-3.0	.15	.37			
	13-34	27-35	1.15-1.45	0.6-2	0.11-0.15	3.0-5.9	2.0-3.0	.10	.37			
	34-48	27-35	1.15-1.40	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.37			
	48-58	---	---	---	---	---	---	---	---			
333: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
334: Tolo-----	0-20	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	2.0-5.0	.43	.43	5	2	134
	20-33	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
	33-60	18-35	1.10-1.45	0.2-0.6	0.15-0.24	3.0-5.9	0.5-1.0	.49	.49			
Olot-----	0-19	5-15	0.75-0.85	2-6	0.20-0.35	0.0-2.9	1.0-4.0	.37	.37	2	2	134
	19-22	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	22-36	25-35	1.00-1.45	0.2-0.6	0.03-0.08	0.0-2.9	0.5-1.0	.10	.43			
	36-46	---	---	---	---	---	---	---	---			
335: Topper-----	0-11	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	4.0-6.0	.32	.32	5	5	56
	11-25	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	1.0-2.0	.43	.43			
	25-35	18-30	1.20-1.40	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	35-60	18-27	1.10-1.30	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
336: Topper-----	0-11	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	4.0-6.0	.32	.32	5	5	56
	11-25	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	1.0-2.0	.43	.43			
	25-35	18-30	1.20-1.40	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	35-60	18-27	1.10-1.30	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
337: Topper-----	0-11	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	4.0-6.0	.32	.32	5	5	56
	11-25	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	1.0-2.0	.43	.43			
	25-35	18-30	1.20-1.40	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	35-60	18-27	1.10-1.30	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
338: Topper-----	0-11	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	4.0-6.0	.32	.32	5	5	56
	11-25	18-27	1.00-1.20	0.6-2	0.19-0.24	0.0-2.9	1.0-2.0	.43	.43			
	25-35	18-30	1.20-1.40	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37			
	35-60	18-27	1.10-1.30	0.6-2	0.14-0.16	0.0-2.9	0.5-1.0	.43	.43			
339: Troutmeadows-----	0-3	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	2	2	134
	3-16	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	0.5-2.0	.32	.32			
	16-30	10-18	1.20-1.35	0.6-2	0.06-0.11	0.0-2.9	2.0-4.0	.10	.37			
	30-40	---	---	---	---	---	---	---	---			
Crawfish-----	0-3	10-15	1.10-1.30	0.6-2	0.04-0.07	0.0-2.9	2.0-4.0	.10	.37	1	8	0
	3-9	15-20	1.30-1.45	0.6-2	0.04-0.06	0.0-2.9	0.0-2.0	.10	.43			
	9-19	---	---	---	---	---	---	---	---			
340: Tuckerdowns-----	0-3	10-20	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.28	.32	5	6	48
	3-10	10-20	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.28	.32			
	10-17	18-27	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.28	.37			
	17-33	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.20	.37			
	33-60	10-20	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.2-0.5	.17	.28			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
341: Tuckerdowns-----	0-3	10-20	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.28	.32	5	6	48
	3-10	10-20	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.28	.32			
	10-17	18-27	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.28	.37			
	17-33	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.20	.37			
	33-60	10-20	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.2-0.5	.17	.28			
342: Tuckerdowns-----	0-3	10-20	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.28	.32	5	6	48
	3-10	10-20	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	2.0-3.0	.28	.32			
	10-17	18-27	1.20-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.28	.37			
	17-33	18-27	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.20	.37			
	33-60	10-20	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.2-0.5	.17	.28			
343: Vandamine-----	0-7	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	5	4	86
	7-13	5-15	0.65-0.85	2-6	0.18-0.34	0.0-2.9	1.0-4.0	.15	.32			
	13-28	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	1.0-2.0	.15	.37			
	28-39	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	0.5-1.0	.10	.37			
	39-60	5-15	1.20-1.40	0.6-2	0.03-0.09	0.0-2.9	0.0-0.5	.10	.37			
Bordengulch-----	0-6	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	2	4	86
	6-13	5-15	0.65-0.85	2-6	0.18-0.34	0.0-2.9	1.0-4.0	.15	.32			
	13-25	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	1.0-2.0	.10	.37			
	25-35	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	0.5-1.0	.10	.37			
	35-45	---	---	---	---	---	---	---	---			
344: Vandamine-----	0-7	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	5	4	86
	7-13	5-15	0.65-0.85	2-6	0.18-0.34	0.0-2.9	1.0-4.0	.15	.32			
	13-28	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	1.0-2.0	.15	.37			
	28-39	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	0.5-1.0	.10	.37			
	39-60	5-15	1.20-1.40	0.6-2	0.03-0.09	0.0-2.9	0.0-0.5	.10	.37			
Bordengulch-----	0-6	5-15	0.65-0.85	2-6	0.25-0.38	0.0-2.9	1.0-4.0	.32	.32	2	4	86
	6-13	5-15	0.65-0.85	2-6	0.18-0.34	0.0-2.9	1.0-4.0	.15	.32			
	13-25	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	1.0-2.0	.10	.37			
	25-35	5-18	1.20-1.40	0.6-2	0.04-0.13	0.0-2.9	0.5-1.0	.10	.37			
	35-45	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
345: Veazie-----	0-19	10-18	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	19-28	10-18	1.30-1.50	0.6-6	0.14-0.19	0.0-2.9	1.0-2.0	.24	.32			
	28-34	0-5	1.50-1.70	20-101	0.05-0.08	0.0-2.9	0.5-1.0	.05	.15			
	34-60	0-5	1.50-1.70	20-101	0.05-0.08	0.0-2.9	0.5-1.0	.05	.15			
346: Voats-----	0-15	5-10	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	2.0-3.0	.32	.32	2	3	86
	15-60	2-5	1.50-1.70	20-101	0.03-0.06	0.0-2.9	0.0-0.5	.05	.15			
Veazie-----	0-19	10-18	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	19-28	10-18	1.30-1.50	0.6-6	0.14-0.19	0.0-2.9	1.0-2.0	.24	.32			
	28-34	0-5	1.50-1.70	20-101	0.05-0.08	0.0-2.9	0.5-1.0	.05	.15			
	34-60	0-5	1.50-1.70	20-101	0.05-0.08	0.0-2.9	0.5-1.0	.05	.15			
347: Volstead-----	0-9	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	3	4	86
	9-13	10-15	0.95-1.00	0.6-2	0.25-0.35	0.0-2.9	1.0-2.0	.32	.32			
	13-23	18-30	1.25-1.40	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.28	.32			
	23-38	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	38-48	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	48-58	---	---	---	---	---	---	---	---			
Quirk-----	0-12	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	2	4	86
	12-21	18-30	1.25-1.55	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.32	.32			
	21-33	40-50	1.35-1.55	0.06-0.2	0.11-0.16	6.0-8.9	0.5-1.0	.28	.32			
	33-37	40-50	1.35-1.55	0.06-0.2	0.05-0.16	6.0-8.9	0.5-1.0	.24	.32			
	37-47	---	---	---	---	---	---	---	---			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
347: Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
348: Volstead-----	0-9	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	3	4	86
	9-13	10-15	0.95-1.00	0.6-2	0.25-0.35	0.0-2.9	1.0-2.0	.32	.32			
	13-23	18-30	1.25-1.40	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.28	.32			
	23-38	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	38-48	35-45	1.35-1.40	0.2-0.6	0.14-0.21	3.0-5.9	0.5-1.0	.28	.32			
	48-58	---	---	---	---	---	---	---	---			
Quirk-----	0-12	10-15	0.85-0.95	0.6-2	0.25-0.35	0.0-2.9	1.0-4.0	.37	.37	2	4	86
	12-21	18-30	1.25-1.55	0.2-2	0.14-0.21	3.0-5.9	0.5-2.0	.32	.32			
	21-33	40-50	1.35-1.55	0.06-0.2	0.11-0.16	6.0-8.9	0.5-1.0	.28	.32			
	33-37	40-50	1.35-1.55	0.06-0.2	0.05-0.16	6.0-8.9	0.5-1.0	.24	.32			
	37-47	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
349: Wallowa-----	0-11	18-27	1.00-1.20	0.6-2	0.20-0.22	0.0-2.9	4.0-6.0	.32	.32	2	6	48
	11-29	18-27	1.00-1.20	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.37	.43			
	29-39	---	---	---	---	---	---	---	---			
Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.37	1	8	0
	2-7	18-27	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.37			
	7-17	---	---	---	---	---	---	---	---			
350: Watama-----	0-5	12-18	1.10-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32	2	5	56
	5-10	12-18	1.10-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32			
	10-25	18-35	1.25-1.35	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.32	.37			
	25-35	---	---	---	---	---	---	---	---			
351: Watama-----	0-5	12-18	1.10-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32	2	5	56
	5-10	12-18	1.10-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32			
	10-25	18-35	1.25-1.35	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.32	.37			
	25-35	---	---	---	---	---	---	---	---			
352: Watama-----	0-5	12-18	1.10-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32	2	5	56
	5-10	12-18	1.10-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32			
	10-25	18-35	1.25-1.35	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.32	.37			
	25-35	---	---	---	---	---	---	---	---			
Rockly-----	0-3	20-27	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.20	.28	1	8	0
	3-7	20-30	1.50-1.60	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.24	.37			
	7-17	---	---	---	---	---	---	---	---			
353: Water-----	---	---	---	---	---	---	---	---	---	---	---	---
354: Wilkins-----	0-19	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	4	6	48
	19-25	18-27	1.00-1.20	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.37	.37			
	25-52	40-60	1.20-1.30	0.0015-0.06	0.14-0.17	6.0-8.9	0.0-0.5	.37	.37			
	52-70	15-35	1.10-1.30	0.2-0.6	0.16-0.21	3.0-5.9	0.0-0.5	.32	.32			
	70-76	15-35	1.10-1.30	0.2-0.6	0.16-0.21	3.0-5.9	0.0-0.5	.32	.32			
355: Wilkins-----	0-19	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	4	6	48
	19-25	18-27	1.00-1.20	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.37	.37			
	25-52	40-60	1.20-1.30	0.0015-0.06	0.14-0.17	6.0-8.9	0.0-0.5	.37	.37			
	52-70	15-35	1.10-1.30	0.2-0.6	0.16-0.21	3.0-5.9	0.0-0.5	.32	.32			
	70-76	15-35	1.10-1.30	0.2-0.6	0.16-0.21	3.0-5.9	0.0-0.5	.32	.32			

Table 17.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
355: Feaginranch-----	0-13	30-35	0.60-0.90	0.2-0.6	0.20-0.22	3.0-5.9	3.0-9.0	.20	.20	5	6	48
	13-20	35-45	1.30-1.40	0.06-0.2	0.20-0.23	6.0-8.9	0.0-1.0	.24	.24			
	20-24	30-35	1.30-1.40	0.2-0.6	0.20-0.23	3.0-5.9	1.0-4.0	.24	.24			
	24-37	35-45	1.20-1.40	0.06-0.2	0.20-0.22	6.0-8.9	0.0-0.5	.24	.24			
	37-61	35-45	1.20-1.40	0.06-0.2	0.20-0.22	6.0-8.9	0.0-0.5	.24	.24			
356: Wolot-----	0-21	5-15	0.70-0.85	2-6	0.30-0.40	0.0-2.9	1.0-5.0	.43	.43	5	2	134
	21-48	18-35	1.00-1.45	0.2-0.6	0.16-0.24	3.0-5.9	0.1-1.0	.43	.43			
	48-60	18-35	1.00-1.45	0.2-0.6	0.16-0.24	3.0-5.9	0.1-1.0	.43	.43			
357: Zumwalt-----	0-7	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	2	5	56
	7-9	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.32	.32			
	9-21	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	21-37	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	37-47	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
358: Zumwalt-----	0-7	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	2	5	56
	7-9	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.32	.32			
	9-21	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	21-37	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	37-47	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
359: Zumwalt-----	0-7	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	3.0-8.0	.32	.32	2	5	56
	7-9	15-20	1.10-1.20	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.32	.32			
	9-21	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	21-37	50-60	1.30-1.40	0.0015-0.06	0.14-0.16	9.0-15.0	0.0-0.8	.28	.28			
	37-47	---	---	---	---	---	---	---	---			
Harlow-----	0-4	20-27	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	2.0-5.0	.15	.43	1	8	0
	4-8	27-35	1.25-1.40	0.2-0.6	0.07-0.12	3.0-5.9	1.0-2.0	.10	.32			
	8-16	40-50	1.30-1.45	0.06-0.2	0.05-0.10	6.0-8.9	1.0-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			

Table 18.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
1:							
Akerite-----	0-12	15-35	5.6-6.5	0	0	0	0
	12-30	10-25	5.6-6.5	0	0	0	0
	30-36	10-25	6.1-7.3	0	0	0	0
	36-60	10-25	6.1-7.3	0	0	0	0
2:							
Akerite-----	0-12	15-35	5.6-6.5	0	0	0	0
	12-30	10-25	5.6-6.5	0	0	0	0
	30-36	10-25	6.1-7.3	0	0	0	0
	36-60	10-25	6.1-7.3	0	0	0	0
3:							
Albee-----	0-14	10-20	5.6-7.3	0	0	0	0
	14-34	10-15	5.6-7.3	0	0	0	0
	34-38	10-20	5.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
4:							
Albee-----	0-14	10-20	5.6-7.3	0	0	0	0
	14-34	10-15	5.6-7.3	0	0	0	0
	34-38	10-20	5.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
5:							
Analulu-----	0-5	10-25	6.1-6.5	0	0	0	0
	5-21	5.0-15	5.6-6.5	0	0	0	0
	21-31	5.0-15	5.6-6.5	0	0	0	0
	31-41	---	---	---	---	---	---
Slicklog-----	0-6	10-25	5.6-6.5	0	0	0	0
	6-16	10-25	5.6-6.5	0	0	0	0
	16-22	10-25	6.1-7.3	0	0	0	0
	22-49	10-25	6.1-7.3	0	0	0	0
	49-60	10-25	6.1-7.3	0	0	0	0
Bluecanyon-----	0-5	10-15	6.1-7.3	0	0	0	0
	5-13	10-15	6.1-7.3	0	0	0	0
	13-17	10-15	6.1-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
6:							
Analulu-----	0-5	10-25	6.1-6.5	0	0	0	0
	5-21	5.0-15	5.6-6.5	0	0	0	0
	21-31	5.0-15	5.6-6.5	0	0	0	0
	31-41	---	---	---	---	---	---
Slicklog-----	0-6	10-25	5.6-6.5	0	0	0	0
	6-16	10-25	5.6-6.5	0	0	0	0
	16-22	10-25	6.1-7.3	0	0	0	0
	22-49	10-25	6.1-7.3	0	0	0	0
	49-60	10-25	6.1-7.3	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
7:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
8:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
9:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
10:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Fivebit-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-9	10-20	5.6-7.3	0	0	0	0
	9-15	15-20	5.6-7.3	0	0	0	0
	15-19	15-20	5.6-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
11:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Fivebit-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-9	10-20	5.6-7.3	0	0	0	0
	9-15	15-20	5.6-7.3	0	0	0	0
	15-19	15-20	5.6-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
12:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
12:							
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
13:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
14:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Kamela-----	0-8	5.0-10	5.6-7.3	0	0	0	0
	8-22	10-15	5.6-6.5	0	0	0	0
	22-32	---	---	---	---	---	---
15:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
16:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
17:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
17:							
Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
18:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
Clearline-----	0-4	20-30	6.1-7.3	0	0	0	0
	4-16	20-30	6.1-7.3	0	0	0	0
	16-26	20-30	6.6-7.3	0	0	0	0
	26-36	20-30	6.6-7.8	0	0	0	0
	36-42	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	42-55	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	55-65	---	---	---	---	---	---
19:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
Fivebit-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-9	10-20	5.6-7.3	0	0	0	0
	9-15	15-20	5.6-7.3	0	0	0	0
	15-19	15-20	5.6-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
20:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
21:							
Balm-----	0-3	5.0-15	7.9-8.4	1-2	0	0.0-2.0	0
	3-15	5.0-15	7.9-8.4	1-2	0	0.0-2.0	0
	15-27	5.0-15	6.6-7.8	0-5	0	0.0-2.0	0
	27-61	0.0-5.0	6.6-7.8	0	0	0.0-2.0	0
Catherine-----	0-22	20-40	6.6-7.8	0	0	0	0
	22-41	10-35	6.6-7.8	0	0	0	0
	41-46	10-35	6.6-7.8	0	0	0	0
	46-60	5.0-15	6.6-7.8	0	0	0	0
22:							
Bittercreek-----	0-11	25-40	6.1-7.3	0	0	0	0
	11-19	5.0-10	6.1-7.3	0	0	0	0
	19-39	1.0-5.0	6.1-7.3	0	0	0	0
	39-60	1.0-5.0	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
22: Mippon-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-6	5.0-10	6.1-7.3	0	0	0	0
	6-10	5.0-10	6.1-7.3	0	0	0	0
	10-21	5.0-10	6.1-7.3	0	0	0	0
	21-60	5.0-10	6.1-7.3	0	0	0	0
23: Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
24: Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
25: Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
26: Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Clearline-----	0-4	20-30	6.1-7.3	0	0	0	0
	4-16	20-30	6.1-7.3	0	0	0	0
	16-26	20-30	6.6-7.3	0	0	0	0
	26-36	20-30	6.6-7.8	0	0	0	0
	36-42	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	42-55	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	55-65	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
27: Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
28: Bridgewater-----	0-8	5.0-10	6.1-7.3	0	0	0	0
	8-30	0.0-5.0	6.1-7.3	0	0	0	0
	30-60	0.0-5.0	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
29:							
Btree-----	0-7	10-25	5.1-6.5	0	0	0	0
	7-17	10-25	5.1-6.0	0	0	0	0
	17-22	10-25	5.6-6.5	0	0	0	0
	22-31	30-50	5.6-7.3	0	0	0	0
	31-42	30-50	5.6-7.3	0	0	0	0
	42-52	---	---	---	---	---	---
Flycreek-----	0-6	10-25	5.6-6.0	0	0	0	0
	6-17	10-25	5.6-6.0	0	0	0	0
	17-20	20-50	5.6-6.0	0	0	0	0
	20-31	20-50	5.6-6.0	0	0	0	0
	31-35	20-50	5.6-6.0	0	0	0	0
	35-39	---	---	---	---	---	---
30:							
Btree-----	0-7	10-25	5.1-6.5	0	0	0	0
	7-17	10-25	5.1-6.0	0	0	0	0
	17-22	10-25	5.6-6.5	0	0	0	0
	22-31	30-50	5.6-7.3	0	0	0	0
	31-42	30-50	5.6-7.3	0	0	0	0
	42-52	---	---	---	---	---	---
Flycreek-----	0-6	10-25	5.6-6.0	0	0	0	0
	6-17	10-25	5.6-6.0	0	0	0	0
	17-20	20-50	5.6-6.0	0	0	0	0
	20-31	20-50	5.6-6.0	0	0	0	0
	31-35	20-50	5.6-6.0	0	0	0	0
	35-39	---	---	---	---	---	---
31:							
Btree-----	0-7	10-25	5.1-6.5	0	0	0	0
	7-17	10-25	5.1-6.0	0	0	0	0
	17-22	10-25	5.6-6.5	0	0	0	0
	22-31	30-50	5.6-7.3	0	0	0	0
	31-42	30-50	5.6-7.3	0	0	0	0
	42-52	---	---	---	---	---	---
Flycreek-----	0-6	10-25	5.6-6.0	0	0	0	0
	6-17	10-25	5.6-6.0	0	0	0	0
	17-20	20-50	5.6-6.0	0	0	0	0
	20-31	20-50	5.6-6.0	0	0	0	0
	31-35	20-50	5.6-6.0	0	0	0	0
	35-39	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
32:							
Btree-----	0-7	10-25	5.1-6.5	0	0	0	0
	7-17	10-25	5.1-6.0	0	0	0	0
	17-22	10-25	5.6-6.5	0	0	0	0
	22-31	30-50	5.6-7.3	0	0	0	0
	31-42	30-50	5.6-7.3	0	0	0	0
	42-52	---	---	---	---	---	---
Flycreek-----	0-6	10-25	5.6-6.0	0	0	0	0
	6-17	10-25	5.6-6.0	0	0	0	0
	17-20	20-50	5.6-6.0	0	0	0	0
	20-31	20-50	5.6-6.0	0	0	0	0
	31-35	20-50	5.6-6.0	0	0	0	0
	35-39	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
33: Btree-----	0-7	10-25	5.1-6.5	0	0	0	0
	7-17	10-25	5.1-6.0	0	0	0	0
	17-22	10-25	5.6-6.5	0	0	0	0
	22-31	30-50	5.6-7.3	0	0	0	0
	31-42	30-50	5.6-7.3	0	0	0	0
	42-52	---	---	---	---	---	---
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
34: Bucketlake-----	0-4	10-25	5.1-6.5	0	0	0	0
	4-14	10-25	5.1-6.5	0	0	0	0
	14-21	5.0-15	5.6-6.5	0	0	0	0
	21-37	5.0-10	5.6-6.5	0	0	0	0
	37-62	5.0-10	6.1-7.3	0	0	0	0
35: Bucketlake-----	0-4	10-25	5.1-6.5	0	0	0	0
	4-14	10-25	5.1-6.5	0	0	0	0
	14-21	5.0-15	5.6-6.5	0	0	0	0
	21-37	5.0-10	5.6-6.5	0	0	0	0
	37-62	5.0-10	6.1-7.3	0	0	0	0
36: Buford-----	0-16	10-20	6.1-7.3	0	0	0	0
	16-36	10-15	6.1-7.3	0	0	0	0
	36-46	10-15	6.1-7.3	0	0	0	0
	46-50	20-25	6.1-7.3	0	0	0	0
	50-60	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
37: Buford-----	0-16	10-20	6.1-7.3	0	0	0	0
	16-36	10-15	6.1-7.3	0	0	0	0
	36-46	10-15	6.1-7.3	0	0	0	0
	46-50	20-25	6.1-7.3	0	0	0	0
	50-60	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
38: Bunchpoint-----	0-12	25-35	5.1-6.5	0	0	0	0
	12-24	20-30	5.1-6.5	0	0	0	0
	24-32	20-30	5.1-6.5	0	0	0	0
	32-42	---	---	---	---	---	---
39: Bunchpoint-----	0-12	25-35	5.1-6.5	0	0	0	0
	12-24	20-30	5.1-6.5	0	0	0	0
	24-32	20-30	5.1-6.5	0	0	0	0
	32-42	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
39:							
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
40:							
Chard-----	0-8	5.0-10	6.6-7.8	0	0	0	0
	8-18	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	18-30	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	30-68	2.0-8.0	7.9-9.0	5-10	0	0.0-2.0	0
41:							
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
42:							
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Imnaha, moist-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
43:							
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
44:							
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Limberjim-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-15	10-25	5.6-7.3	0	0	0	0
	15-20	20-30	5.6-7.3	0	0	0	0
	20-41	20-30	5.6-7.3	0	0	0	0
	41-51	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
44: Rock outcrop-----	0-60	---	---	---	---	---	---
45: Chesnimnus-----	0-7	30-40	6.6-7.3	0	0	0	0
	7-13	25-35	6.6-7.8	0-5	0	0.0-2.0	0
	13-26	25-35	6.6-8.4	0-5	0	0.0-2.0	0
	26-34	25-35	7.4-8.4	0-5	0	0.0-2.0	0
	34-48	20-35	7.9-8.4	10-15	0	0.0-2.0	0
	48-60	15-30	7.9-8.4	25-30	0	0.0-2.0	0
46: Chesnimnus-----	0-7	30-40	6.6-7.3	0	0	0	0
	7-13	25-35	6.6-7.8	0-5	0	0.0-2.0	0
	13-26	25-35	6.6-8.4	0-5	0	0.0-2.0	0
	26-34	25-35	7.4-8.4	0-5	0	0.0-2.0	0
	34-48	20-35	7.9-8.4	10-15	0	0.0-2.0	0
	48-60	15-30	7.9-8.4	25-30	0	0.0-2.0	0
47: Cheval-----	0-15	10-20	7.9-8.4	1-2	0	0.0-2.0	0
	15-24	5.0-15	7.9-8.4	1-2	0	0.0-2.0	0
	24-31	5.0-15	7.9-8.4	1-2	0	0.0-2.0	0
	31-60	5.0-10	7.9-8.4	1-2	0	0.0-2.0	0
48: Cloverland-----	0-9	15-35	6.1-7.3	0	0	0	0
	9-33	15-30	6.1-7.3	0	0	0	0
	33-45	20-35	6.1-7.3	0	0	0	0
	45-60	20-35	6.1-7.3	0	0	0	0
49: Cloverland-----	0-9	15-35	6.1-7.3	0	0	0	0
	9-33	15-30	6.1-7.3	0	0	0	0
	33-45	20-35	6.1-7.3	0	0	0	0
	45-60	20-35	6.1-7.3	0	0	0	0
50: Conley-----	0-14	20-30	6.6-7.3	0	0	0	0
	14-23	15-20	6.6-7.3	0	0	0	0
	23-40	30-35	6.6-7.8	0	0	0.0-2.0	0
	40-60	20-25	6.6-7.8	0	0	0.0-2.0	0
51: Conley-----	0-14	20-30	6.6-7.3	0	0	0	0
	14-23	15-20	6.6-7.3	0	0	0	0
	23-40	30-35	6.6-7.8	0	0	0.0-2.0	0
	40-60	20-25	6.6-7.8	0	0	0.0-2.0	0
52: Copperfield-----	0-4	10-15	6.6-7.3	0	0	0	0
	4-22	10-20	6.6-7.3	0	0	0	0
	22-42	15-20	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
Thiessen-----	0-3	16-22	6.6-7.3	0	0	0	0
	3-6	24-30	6.6-7.3	0	0	0	0
	6-14	24-32	6.6-7.8	0	0	0	0
	14-23	24-32	6.6-7.8	0	0	0	0
	23-34	24-32	6.6-7.8	0	0	0	0
	34-44	---	---	---	---	---	---
53: Copperfield-----	0-4	10-15	6.6-7.3	0	0	0	0
	4-22	10-20	6.6-7.3	0	0	0	0
	22-42	15-20	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
53:							
Thiessen-----	0-3	16-22	6.6-7.3	0	0	0	0
	3-6	24-30	6.6-7.3	0	0	0	0
	6-14	24-32	6.6-7.8	0	0	0	0
	14-23	24-32	6.6-7.8	0	0	0	0
	23-34	24-32	6.6-7.8	0	0	0	0
	34-44	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
54:							
Cowsly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0	0	0	0
	50-60	---	---	---	---	---	---
55:							
Cowsly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0	0	0	0
	50-60	---	---	---	---	---	---
56:							
Cowsly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0	0	0	0
	50-60	---	---	---	---	---	---
57:							
Cowsly, cobbly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0	0	0	0
	50-60	---	---	---	---	---	---
Cowsly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0-2	0	0.0-2.0	0
	50-60	---	---	---	---	---	---
58:							
Cowsly, cobbly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0	0	0	0
	50-60	---	---	---	---	---	---
Cowsly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0	0	0	0
	50-60	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
59:							
Cowsly-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-23	10-25	6.1-7.3	0	0	0	0
	23-41	30-35	6.1-7.3	0	0	0	0
	41-50	30-35	6.6-7.8	0	0	0	0
	50-60	---	---	---	---	---	---
Howmeadows-----	0-7	25-35	6.1-7.3	0	0	0	0
	7-10	20-35	6.1-7.3	0	0	0	0
	10-21	25-35	6.1-7.3	0	0	0	0
	21-26	25-35	6.1-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
Sherod-----	0-5	25-35	6.1-7.3	0	0	0	0
	5-8	20-30	6.1-7.3	0	0	0	0
	8-17	20-30	6.1-7.3	0	0	0	0
	17-19	20-30	6.1-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
60:							
Demasters-----	0-9	15-30	5.6-7.3	0	0	0	0
	9-24	15-25	5.6-7.3	0	0	0	0
	24-33	15-30	5.6-7.3	0	0	0	0
	33-44	15-25	5.6-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
61:							
Dixiejett-----	0-6	10-30	6.6-7.8	0	0	0	0
	6-10	10-30	6.6-7.8	0	0	0	0
	10-18	20-35	6.6-8.4	0	0	0.0-2.0	0
	18-27	20-35	6.6-8.4	0	0	0.0-2.0	0
	27-43	10-35	6.6-8.4	0	0	0.0-2.0	0
	43-53	---	---	---	---	---	---
Licksillet-----	0-7	0.0-5.0	6.1-8.4	0	0	0.0-2.0	0
	7-19	5.0-15	6.6-8.4	0-2	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
62:							
Doublecreek-----	0-4	10-15	6.1-7.8	0	0	0	0
	4-16	10-15	6.1-7.8	0	0	0	0
	16-22	15-20	6.6-7.8	0	0	0	0
	22-40	15-20	6.6-7.8	0	0	0	0
	40-61	15-20	6.6-8.4	0	0	0.0-2.0	0
Flybow-----	0-2	10-15	6.1-7.3	0	0	0	0
	2-8	10-15	6.1-7.3	0	0	0	0
	8-18	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
63:							
Doublecreek-----	0-4	10-15	6.1-7.8	0	0	0	0
	4-16	10-15	6.1-7.8	0	0	0	0
	16-22	15-20	6.6-7.8	0	0	0	0
	22-40	15-20	6.6-7.8	0	0	0	0
	40-61	15-20	6.6-8.4	0	0	0.0-2.0	0



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
63:							
Langrell-----	0-9	5.0-15	6.6-7.3	0	0	0	0
	9-20	5.0-15	6.6-7.3	0	0	0	0
	20-32	5.0-10	6.6-7.3	0	0	0	0
	32-50	5.0-10	6.6-7.8	0-2	0	0.0-2.0	0
	50-60	5.0-10	6.6-7.8	0-2	0	0.0-2.0	0
64:							
Doublecreek-----	0-4	10-15	6.1-7.8	0	0	0	0
	4-16	10-15	6.1-7.8	0	0	0	0
	16-22	15-20	6.6-7.8	0	0	0	0
	22-40	15-20	6.6-7.8	0	0	0	0
	40-61	15-20	6.6-8.4	0	0	0.0-2.0	0
Phys-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-16	10-15	6.6-7.3	0	0	0	0
	16-23	15-20	6.6-7.3	0	0	0	0
	23-60	10-15	6.6-7.8	0	0	0	0
65:							
Downards-----	0-3	10-25	6.6-7.3	0	0	0	0
	3-12	10-25	6.6-7.3	0	0	0	0
	12-20	15-25	6.6-7.3	0	0	0	0
	20-61	15-25	6.6-7.3	0	0	0	0
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
66:							
Downards-----	0-3	10-25	6.6-7.3	0	0	0	0
	3-12	10-25	6.6-7.3	0	0	0	0
	12-20	15-25	6.6-7.3	0	0	0	0
	20-61	15-25	6.6-7.3	0	0	0	0
Emily-----	0-5	10-15	6.1-7.3	0	0	0	0
	5-14	15-20	6.1-7.3	0	0	0	0
	14-33	15-20	6.1-7.3	0	0	0	0
	33-60	10-15	6.1-7.3	0	0	0	0
Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
67:							
Downards-----	0-3	10-25	6.6-7.3	0	0	0	0
	3-12	10-25	6.6-7.3	0	0	0	0
	12-20	15-25	6.6-7.3	0	0	0	0
	20-51	15-25	6.6-7.3	0	0	0	0
	51-61	---	---	---	---	---	---
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
68:							
Downards-----	0-3	10-25	6.6-7.3	0	0	0	0
	3-12	10-25	6.6-7.3	0	0	0	0
	12-20	15-25	6.6-7.3	0	0	0	0
	20-51	15-25	6.6-7.3	0	0	0	0
	51-61	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
68: Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
69: Downeygulch-----	0-3	20-35	5.1-6.5	0	0	0	0
	3-13	20-30	5.1-6.5	0	0	0	0
	13-24	20-30	5.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Lowerbluff-----	0-6	40-50	5.1-6.5	0	0	0	0
	6-15	20-30	5.1-6.5	0	0	0	0
	15-25	---	---	---	---	---	---
70: Downeygulch-----	0-3	20-35	5.1-6.5	0	0	0	0
	3-13	20-30	5.1-6.5	0	0	0	0
	13-24	20-30	5.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Thirstygulch-----	0-10	20-35	5.6-7.3	0	0	0	0
	10-19	20-30	6.1-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
71: Eggleston-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-10	5.0-10	6.6-7.3	0	0	0	0
	10-17	0.0-5.0	6.6-7.8	0	0	0	0
	17-30	0.0-5.0	6.6-7.8	0	0	0	0
	30-60	0.0-5.0	6.6-7.8	0	0	0	0
72: Emily-----	0-5	10-15	6.1-7.3	0	0	0	0
	5-14	15-20	6.1-7.3	0	0	0	0
	14-33	15-20	6.1-7.3	0	0	0	0
	33-60	10-15	6.1-7.3	0	0	0	0
Wolot-----	0-21	10-25	6.6-7.3	0	0	0	0
	21-48	10-25	6.6-7.3	0	0	0	0
	48-60	10-25	6.6-7.3	0	0	0	0
73: Endoaquolls, mesic---	0-10	10-20	6.1-7.3	0	0	0	0
	10-16	10-20	6.1-7.3	0	0	0	0
	16-21	10-20	6.1-7.3	0	0	0	0
	21-31	10-20	6.1-7.3	0	0	0	0
	31-60	5.0-15	6.1-7.3	0	0	0	0
74: Ferguson-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-24	10-25	6.1-7.3	0	0	0	0
	24-38	5.0-10	6.1-7.3	0	0	0	0
	38-45	5.0-10	6.1-7.3	0	0	0	0
	45-60	5.0-10	6.1-7.3	0	0	0	0
75: Ferguson-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-24	10-25	6.1-7.3	0	0	0	0
	24-38	5.0-10	6.1-7.3	0	0	0	0
	38-45	5.0-10	6.1-7.3	0	0	0	0
	45-60	5.0-10	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
76:							
Ferguson-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-24	10-25	6.1-7.3	0	0	0	0
	24-38	5.0-10	6.1-7.3	0	0	0	0
	38-45	5.0-10	6.1-7.3	0	0	0	0
	45-60	5.0-10	6.1-7.3	0	0	0	0
77:							
Ferguson-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-24	10-25	6.1-7.3	0	0	0	0
	24-38	5.0-10	6.1-7.3	0	0	0	0
	38-45	5.0-10	6.1-7.3	0	0	0	0
	45-60	5.0-10	6.1-7.3	0	0	0	0
78:							
Ferguson-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-24	10-25	6.1-7.3	0	0	0	0
	24-38	5.0-10	6.1-7.3	0	0	0	0
	38-45	5.0-10	6.1-7.3	0	0	0	0
	45-60	5.0-10	6.1-7.3	0	0	0	0
79:							
Flybow-----	0-2	10-15	6.1-7.3	0	0	0	0
	2-8	10-15	6.1-7.3	0	0	0	0
	8-18	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
80:							
Flybow-----	0-2	10-15	6.1-7.3	0	0	0	0
	2-8	10-15	6.1-7.3	0	0	0	0
	8-18	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
81:							
Flycreek-----	0-6	10-25	5.6-6.0	0	0	0	0
	6-17	10-25	5.6-6.0	0	0	0	0
	17-20	20-50	5.6-6.0	0	0	0	0
	20-31	20-50	5.6-6.0	0	0	0	0
	31-35	20-50	5.6-6.0	0	0	0	0
	35-39	---	---	---	---	---	---
Flyvalley-----	0-6	10-25	5.1-6.0	0	0	0	0
	6-19	10-25	5.1-6.0	0	0	0	0
	19-29	---	---	---	---	---	---
82:							
Freels-----	0-5	10-15	6.6-7.8	0	0	0	0
	5-34	5.0-15	6.6-7.8	0	0	0	0
	34-51	5.0-10	6.6-7.8	0	0	0	0
	51-60	5.0-10	6.6-7.8	0	0	0	0
83:							
Geisercreek-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-14	10-25	5.6-7.3	0	0	0	0
	14-19	10-25	5.6-7.3	0	0	0	0
	19-23	10-30	5.6-7.3	0	0	0	0
	23-29	20-35	5.6-7.3	0	0	0	0
	29-35	20-35	5.6-7.3	0	0	0	0
	35-60	10-35	5.6-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
84: Gelsinger-----	0-10	15-25	6.6-7.3	0	0	0	0
	10-14	20-30	6.6-7.3	0	0	0	0
	14-21	30-40	6.6-7.3	0	0	0	0
	21-36	25-35	7.4-8.4	5-10	0	0.0-2.0	0
	36-45	15-25	7.4-8.4	0-2	0	0.0-2.0	0
	45-51	15-25	7.4-8.4	0-2	0	0.0-2.0	0
	51-60	15-25	7.4-8.4	0-2	0	0.0-2.0	0
85: Gelsinger-----	0-10	15-25	6.6-7.3	0	0	0	0
	10-14	20-30	6.6-7.3	0	0	0	0
	14-21	30-40	6.6-7.3	0	0	0	0
	21-36	25-35	7.4-8.4	5-10	0	0.0-2.0	0
	36-45	15-25	7.4-8.4	0-2	0	0.0-2.0	0
	45-51	15-25	7.4-8.4	0-2	0	0.0-2.0	0
	51-60	15-25	7.4-8.4	0-2	0	0.0-2.0	0
86: Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
87: Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
88: Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
89: Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
90: Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
91:							
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
92:							
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
93:							
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
94:							
Gwin-----	0-5	25-30	6.6-7.3	0	0	0	0
	5-9	20-30	6.6-7.3	0	0	0	0
	9-13	20-30	6.6-7.3	0	0	0	0
	13-23	---	---	---	---	---	---
Kettenbach-----	0-8	20-30	6.1-7.3	0	0	0	0
	8-16	20-30	6.1-7.3	0	0	0	0
	16-24	20-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
95:							
Gwin-----	0-5	25-30	6.6-7.3	0	0	0	0
	5-9	20-30	6.6-7.3	0	0	0	0
	9-13	20-30	6.6-7.3	0	0	0	0
	13-23	---	---	---	---	---	---
Kettenbach-----	0-8	20-30	6.1-7.3	0	0	0	0
	8-16	20-30	6.1-7.3	0	0	0	0
	16-24	20-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
96:							
Gwin-----	0-5	25-30	6.6-7.3	0	0	0	0
	5-9	20-30	6.6-7.3	0	0	0	0
	9-13	20-30	6.6-7.3	0	0	0	0
	13-23	---	---	---	---	---	---
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0
Kettenbach-----	0-8	20-30	6.1-7.3	0	0	0	0
	8-16	20-30	6.1-7.3	0	0	0	0
	16-24	20-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
97:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Kettenbach-----	0-8	20-30	6.1-7.3	0	0	0	0
	8-16	20-30	6.1-7.3	0	0	0	0
	16-24	20-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
98:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
99:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
100:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
100:							
Kettenbach-----	0-8	20-30	6.1-7.3	0	0	0	0
	8-16	20-30	6.1-7.3	0	0	0	0
	16-24	20-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
101:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
Kettenbach-----	0-8	20-30	6.1-7.3	0	0	0	0
	8-16	20-30	6.1-7.3	0	0	0	0
	16-24	20-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
102:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
Kettenbach-----	0-8	20-30	6.1-7.3	0	0	0	0
	8-16	20-30	6.1-7.3	0	0	0	0
	16-24	20-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
103:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
104:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
105:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
106:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
107:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
108:							
Hapludolls, frigid--	0-11	10-35	6.1-7.8	0	0	0	0
	11-24	10-35	6.6-7.8	0	0	0	0
	24-43	5.0-35	7.4-8.4	0	0	0	0
	43-61	5.0-35	7.4-8.4	0	0	0	0
Endoaquolls, Frigid--	0-10	10-35	6.1-7.8	0	0	0	0
	10-18	10-35	6.1-7.8	0	0	0	0
	18-61	5.0-35	6.1-7.8	0	0	0	0
Endoaquents, frigid--	0-8	5.0-30	6.1-7.8	0	0	0	0
	8-15	5.0-25	6.1-7.8	0	0	0	0
	15-61	5.0-25	6.1-7.3	0	0	0	0
109:							
Harl-----	0-2	10-25	5.6-7.3	0	0	0	0
	2-13	10-25	6.1-7.3	0	0	0	0
	13-24	10-25	6.1-7.3	0	0	0	0
	24-29	20-30	6.1-7.3	0	0	0	0
	29-48	20-30	6.1-7.3	0	0	0	0
	48-61	20-30	6.1-7.3	0	0	0	0
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
110:							
Harl-----	0-2	10-25	5.6-7.3	0	0	0	0
	2-13	10-25	6.1-7.3	0	0	0	0
	13-24	10-25	6.1-7.3	0	0	0	0
	24-29	20-30	6.1-7.3	0	0	0	0
	29-48	20-30	6.1-7.3	0	0	0	0
	48-61	20-30	6.1-7.3	0	0	0	0
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
111:							
Harl-----	0-2	10-25	5.6-7.3	0	0	0	0
	2-13	10-25	6.1-7.3	0	0	0	0
	13-24	10-25	6.1-7.3	0	0	0	0
	24-29	20-30	6.1-7.3	0	0	0	0
	29-48	20-30	6.1-7.3	0	0	0	0
	48-61	20-30	6.1-7.3	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
112:							
Harl-----	0-2	10-25	5.6-7.3	0	0	0	0
	2-13	10-25	6.1-7.3	0	0	0	0
	13-24	10-25	6.1-7.3	0	0	0	0
	24-29	20-30	6.1-7.3	0	0	0	0
	29-48	20-30	6.1-7.3	0	0	0	0
	48-61	20-30	6.1-7.3	0	0	0	0
Limberjim-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-15	10-25	5.6-7.3	0	0	0	0
	15-20	20-30	5.6-7.3	0	0	0	0
	20-41	20-30	5.6-7.3	0	0	0	0
	41-51	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
113:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
114:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
115:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
115: Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
116: Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
117: Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
118: Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
119: Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
120: Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
121:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
122:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
123:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
124:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
125:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
125:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
126:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
127:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
128:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
129:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
129:							
Threebuck-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-25	25-40	5.6-6.5	0	0	0	0
	25-36	25-40	5.6-6.5	0	0	0	0
	36-47	50-75	6.1-7.3	0	0	0	0
	47-57	---	---	---	---	---	---
130:							
Hershal-----	0-10	10-15	6.6-7.8	0	0	0	0
	10-24	5.0-10	6.6-7.3	0	0	0	0
	24-60	0.0-5.0	6.6-7.3	0	0	0	0
131:							
Hershal-----	0-10	10-15	6.6-7.8	0	0	0	0
	10-24	5.0-10	6.6-7.3	0	0	0	0
	24-60	0.0-5.0	6.6-7.3	0	0	0	0
Voats-----	0-15	5.0-10	6.6-7.3	0	0	0	0
	15-60	0.0-5.0	6.6-7.3	0	0	0	0
132:							
Hershal-----	0-10	10-15	6.6-7.8	0	0	0	0
	10-24	5.0-10	6.6-7.3	0	0	0	0
	24-60	0.0-5.0	6.6-7.3	0	0	0	0
Voats-----	0-15	5.0-10	6.6-7.3	0	0	0	0
	15-60	0.0-5.0	6.6-7.3	0	0	0	0
Veazie-----	0-19	5.0-15	6.6-7.3	0	0	0	0
	19-28	5.0-10	6.6-7.3	0	0	0	0
	28-34	0.0-5.0	6.6-7.3	0	0	0	0
	34-60	0.0-5.0	6.6-7.3	0	0	0	0
133:							
Howmeadows-----	0-7	25-35	6.1-7.3	0	0	0	0
	7-10	20-35	6.1-7.3	0	0	0	0
	10-21	25-35	6.1-7.3	0	0	0	0
	21-26	25-35	6.1-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
Wilkins-----	0-19	15-35	5.6-7.3	0	0	0	0
	19-25	15-20	5.6-7.3	0	0	0	0
	25-52	30-40	5.6-7.3	0	0	0	0
	52-70	10-25	5.6-6.0	0	0	0	0
	70-76	10-25	5.6-6.0	0	0	0	0
134:							
Hurwal-----	0-12	25-35	6.1-7.3	0	0	0	0
	12-18	25-35	6.1-7.3	0	0	0	0
	18-56	25-35	6.6-7.3	0	0	0	0
	56-60	25-35	6.6-8.4	0-5	0	0.0-2.0	0
135:							
Hurwal-----	0-12	25-35	6.1-7.3	0	0	0	0
	12-18	25-35	6.1-7.3	0	0	0	0
	18-56	25-35	6.6-7.3	0	0	0	0
	56-60	25-35	6.6-8.4	0-5	0	0.0-2.0	0
136:							
Hurwal, deep-----	0-12	25-35	6.1-7.3	0	0	0	0
	12-18	25-35	6.1-7.3	0	0	0	0
	18-56	25-35	6.6-7.3	0	0	0	0
	56-60	25-35	6.6-8.4	0-5	0	0.0-2.0	0
	58-68	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
137: Hurwal, deep-----	0-12	25-35	6.1-7.3	0	0	0	0
	12-18	25-35	6.1-7.3	0	0	0	0
	18-56	25-35	6.6-7.3	0	0	0	0
	56-60	25-35	6.6-8.4	0-5	0	0.0-2.0	0
	58-68	---	---	---	---	---	---
138: Hurwal-----	0-12	25-35	6.1-7.3	0	0	0	0
	12-18	25-35	6.1-7.3	0	0	0	0
	18-56	25-35	6.6-7.3	0	0	0	0
	56-60	25-35	6.6-8.4	0-5	0	0.0-2.0	0
139: Hurwal-----	0-12	25-35	6.1-7.3	0	0	0	0
	12-18	25-35	6.1-7.3	0	0	0	0
	18-56	25-35	6.6-7.3	0	0	0	0
	56-60	25-35	6.6-8.4	0-5	0	0.0-2.0	0
140: Hurwal-----	0-12	25-35	6.1-7.3	0	0	0	0
	12-18	25-35	6.1-7.3	0	0	0	0
	18-56	25-35	6.6-7.3	0	0	0	0
	56-60	25-35	6.6-8.4	0-5	0	0.0-2.0	0
141: Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
142: Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Imhaha, moist-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
143: Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
143:							
Clearline-----	0-4	20-30	6.1-7.3	0	0	0	0
	4-16	20-30	6.1-7.3	0	0	0	0
	16-26	20-30	6.6-7.3	0	0	0	0
	26-36	20-30	6.6-7.8	0	0	0	0
	36-42	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	42-55	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	55-65	---	---	---	---	---	---
144:							
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
145:							
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Clearline-----	0-4	20-30	6.1-7.3	0	0	0	0
	4-16	20-30	6.1-7.3	0	0	0	0
	16-26	20-30	6.6-7.3	0	0	0	0
	26-36	20-30	6.6-7.8	0	0	0	0
	36-42	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	42-55	20-30	6.6-7.8	0-2	0	0.0-2.0	0
	55-65	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
146:							
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
147:							
Josset-----	0-11	10-15	7.4-8.4	1-2	0	0.0-2.0	0
	11-22	5.0-10	7.4-8.4	1-2	0	0.0-2.0	0
	22-60	0.0-5.0	7.4-8.4	1-2	0	0.0-2.0	0
148:							
Kahler-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-27	20-30	5.6-7.3	0	0	0	0
	27-40	20-30	5.6-7.3	0	0	0	0
	40-44	20-30	5.6-7.3	0	0	0	0
	44-61	20-30	5.6-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
148:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
149:							
Kahler-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-27	20-30	5.6-7.3	0	0	0	0
	27-40	20-30	5.6-7.3	0	0	0	0
	40-44	20-30	5.6-7.3	0	0	0	0
	44-61	20-30	5.6-7.3	0	0	0	0
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
150:							
Kahler-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-27	20-30	5.6-7.3	0	0	0	0
	27-40	20-30	5.6-7.3	0	0	0	0
	40-44	20-30	5.6-7.3	0	0	0	0
	44-61	20-30	5.6-7.3	0	0	0	0
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
151:							
Kahler-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-27	20-30	5.6-7.3	0	0	0	0
	27-40	20-30	5.6-7.3	0	0	0	0
	40-44	20-30	5.6-7.3	0	0	0	0
	44-61	20-30	5.6-7.3	0	0	0	0
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
152:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
153:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
154:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
155:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
156:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
157:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
158:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
159:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
160:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
160:							
Fivebit-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-9	10-20	5.6-7.3	0	0	0	0
	9-15	15-20	5.6-7.3	0	0	0	0
	15-19	15-20	5.6-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
161:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Fivebit-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-9	10-20	5.6-7.3	0	0	0	0
	9-15	15-20	5.6-7.3	0	0	0	0
	15-19	15-20	5.6-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
162:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
163:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Kamela-----	0-8	5.0-10	5.6-7.3	0	0	0	0
	8-22	10-15	5.6-6.5	0	0	0	0
	22-32	---	---	---	---	---	---
Fivebit-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-9	10-20	5.6-7.3	0	0	0	0
	9-15	15-20	5.6-7.3	0	0	0	0
	15-19	15-20	5.6-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
164:							
Klicker-----	0-3	10-30	6.1-6.5	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
165:							
Klicker-----	0-3	10-30	6.1-6.5	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Thirstygulch-----	0-10	20-35	5.6-7.3	0	0	0	0
	10-19	20-30	6.1-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
166:							
Klicker-----	0-3	10-30	6.1-6.5	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Thirstygulch-----	0-10	20-35	5.6-7.3	0	0	0	0
	10-19	20-30	6.1-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
167:							
Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
168:							
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
169:							
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
169:							
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
170:							
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
171:							
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Volstead-----	0-9	10-25	6.1-7.3	0	0	0	0
	9-13	10-25	6.1-7.3	0	0	0	0
	13-23	10-35	6.6-7.3	0	0	0	0
	23-38	20-50	6.6-7.8	0	0	0	0
	38-48	20-50	6.6-7.8	0	0	0	0
	48-58	---	---	---	---	---	---
172:							
Langrell-----	0-9	5.0-15	6.6-7.3	0	0	0	0
	9-20	5.0-15	6.6-7.3	0	0	0	0
	20-32	5.0-10	6.6-7.3	0	0	0	0
	32-50	5.0-10	6.6-7.8	0-2	0	0.0-2.0	0
	50-60	5.0-10	6.6-7.8	0-2	0	0.0-2.0	0
173:							
Langrell-----	0-9	5.0-15	6.6-7.3	0	0	0	0
	9-20	5.0-15	6.6-7.3	0	0	0	0
	20-32	5.0-10	6.6-7.3	0	0	0	0
	32-50	5.0-10	6.6-7.8	0-2	0	0.0-2.0	0
	50-60	5.0-10	6.6-7.8	0-2	0	0.0-2.0	0
Snow-----	0-18	15-25	6.6-7.8	0	0	0	0
	18-36	20-30	6.6-7.8	0	0	0	0
	36-60	15-25	6.6-8.4	0-5	0	0.0-2.0	0
174:							
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
174:							
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0
175:							
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0
Volstead-----	0-9	10-25	6.1-7.3	0	0	0	0
	9-13	10-25	6.1-7.3	0	0	0	0
	13-23	10-35	6.6-7.3	0	0	0	0
	23-38	20-50	6.6-7.8	0	0	0	0
	38-48	20-50	6.6-7.8	0	0	0	0
	48-58	---	---	---	---	---	---
176:							
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Klickson-----	0-6	10-35	6.1-7.3	0	0	0	0
	6-18	10-35	6.1-7.3	0	0	0	0
	18-38	10-20	6.1-7.3	0	0	0	0
	38-66	10-20	6.1-7.3	0	0	0	0
Volstead-----	0-9	10-25	6.1-7.3	0	0	0	0
	9-13	10-25	6.1-7.3	0	0	0	0
	13-23	10-35	6.6-7.3	0	0	0	0
	23-38	20-50	6.6-7.8	0	0	0	0
	38-48	20-50	6.6-7.8	0	0	0	0
	48-58	---	---	---	---	---	---
177:							
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Melhorn-----	0-3	10-25	6.1-7.3	0	0	0	0
	3-20	10-25	6.1-7.3	0	0	0	0
	20-38	10-35	6.1-7.3	0	0	0	0
	38-48	10-35	6.1-7.3	0	0	0	0
	48-61	10-35	6.1-7.3	0	0	0	0
178:							
Larabee-----	0-12	20-35	6.1-7.3	0	0	0	0
	12-20	15-30	6.1-7.3	0	0	0	0
	20-36	15-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Volstead-----	0-9	10-25	6.1-7.3	0	0	0	0
	9-13	10-25	6.1-7.3	0	0	0	0
	13-23	10-35	6.6-7.3	0	0	0	0
	23-38	20-50	6.6-7.8	0	0	0	0
	38-48	20-50	6.6-7.8	0	0	0	0
	48-58	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
179:							
Laufer-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	15-25	6.6-7.8	0	0	0	0
	8-16	15-25	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
Thiessen-----	0-3	16-22	6.6-7.3	0	0	0	0
	3-6	24-30	6.6-7.3	0	0	0	0
	6-14	24-32	6.6-7.8	0	0	0	0
	14-23	24-32	6.6-7.8	0	0	0	0
	23-34	24-32	6.6-7.8	0	0	0	0
	34-44	---	---	---	---	---	---
180:							
Laufer-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	15-25	6.6-7.8	0	0	0	0
	8-16	15-25	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
Thiessen-----	0-3	16-22	6.6-7.3	0	0	0	0
	3-6	24-30	6.6-7.3	0	0	0	0
	6-14	24-32	6.6-7.8	0	0	0	0
	14-23	24-32	6.6-7.8	0	0	0	0
	23-34	24-32	6.6-7.8	0	0	0	0
	34-44	---	---	---	---	---	---
181:							
Laufer-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	15-25	6.6-7.8	0	0	0	0
	8-16	15-25	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
Thiessen-----	0-3	16-22	6.6-7.3	0	0	0	0
	3-6	24-30	6.6-7.3	0	0	0	0
	6-14	24-32	6.6-7.8	0	0	0	0
	14-23	24-32	6.6-7.8	0	0	0	0
	23-34	24-32	6.6-7.8	0	0	0	0
	34-44	---	---	---	---	---	---
182:							
Laufer-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	15-25	6.6-7.8	0	0	0	0
	8-16	15-25	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
Thiessen-----	0-3	16-22	6.6-7.3	0	0	0	0
	3-6	24-30	6.6-7.3	0	0	0	0
	6-14	24-32	6.6-7.8	0	0	0	0
	14-23	24-32	6.6-7.8	0	0	0	0
	23-34	24-32	6.6-7.8	0	0	0	0
	34-44	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
183:							
Lawyer, stony-----	0-4	10-15	6.1-7.3	0	0	0	0
	4-11	10-20	6.1-7.3	0	0	0	0
	11-23	15-20	6.6-7.3	0	0	0	0
	23-35	15-20	6.6-7.3	0	0	0	0
	35-44	20-25	6.6-7.8	0	0	0	0
	44-54	---	---	---	---	---	---
Lawyer-----	0-4	10-15	6.1-7.3	0	0	0	0
	4-11	10-20	6.1-7.3	0	0	0	0
	11-23	15-20	6.6-7.3	0	0	0	0
	23-35	15-20	6.6-7.3	0	0	0	0
	35-44	20-25	6.6-7.8	0	0	0	0
	44-54	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
183:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
184:							
Lickskillet-----	0-7	0.0-5.0	6.1-8.4	0	0	0.0-2.0	0
	7-19	5.0-15	6.6-8.4	0-2	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
Dixiejett-----	0-6	10-30	6.6-7.8	0	0	0	0
	6-10	10-30	6.6-7.8	0	0	0	0
	10-18	20-35	6.6-8.4	0	0	0.0-2.0	0
	18-27	20-35	6.6-8.4	0	0	0.0-2.0	0
	27-43	10-35	6.6-8.4	0	0	0.0-2.0	0
	43-53	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
185:							
Lickskillet-----	0-7	0.0-5.0	6.1-8.4	0	0	0.0-2.0	0
	7-19	5.0-15	6.6-8.4	0-2	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
Doublecreek-----	0-4	10-15	6.1-7.8	0	0	0	0
	4-16	10-15	6.1-7.8	0	0	0	0
	16-22	15-20	6.6-7.8	0	0	0	0
	22-40	15-20	6.6-7.8	0	0	0	0
	40-61	15-20	6.6-8.4	0	0	0.0-2.0	0
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
186:							
Lickskillet-----	0-7	0.0-5.0	6.1-8.4	0	0	0.0-2.0	0
	7-19	5.0-15	6.6-8.4	0-2	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
Doublecreek-----	0-4	10-15	6.1-7.8	0	0	0	0
	4-16	10-15	6.1-7.8	0	0	0	0
	16-22	15-20	6.6-7.8	0	0	0	0
	22-40	15-20	6.6-7.8	0	0	0	0
	40-61	15-20	6.6-8.4	0	0	0.0-2.0	0
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
187:							
Limberjim-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-15	10-25	5.6-7.3	0	0	0	0
	15-20	20-30	5.6-7.3	0	0	0	0
	20-41	20-30	5.6-7.3	0	0	0	0
	41-51	---	---	---	---	---	---
188:							
Limberjim-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-15	10-25	5.6-7.3	0	0	0	0
	15-20	20-30	5.6-7.3	0	0	0	0
	20-41	20-30	5.6-7.3	0	0	0	0
	41-51	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
189:							
Limberjim-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-15	10-25	5.6-7.3	0	0	0	0
	15-20	20-30	5.6-7.3	0	0	0	0
	20-41	20-30	5.6-7.3	0	0	0	0
	41-51	---	---	---	---	---	---
Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
190:							
Limberjim-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-15	10-25	5.6-7.3	0	0	0	0
	15-20	20-30	5.6-7.3	0	0	0	0
	20-41	20-30	5.6-7.3	0	0	0	0
	41-51	---	---	---	---	---	---
Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
191:							
Limberjim-----	0-5	10-25	5.6-7.3	0	0	0	0
	5-15	10-25	5.6-7.3	0	0	0	0
	15-20	20-30	5.6-7.3	0	0	0	0
	20-41	20-30	5.6-7.3	0	0	0	0
	41-51	---	---	---	---	---	---
Tamara-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-15	10-25	5.6-6.5	0	0	0	0
	15-30	10-25	5.6-6.5	0	0	0	0
	30-51	10-25	5.6-6.5	0	0	0	0
	51-60	10-25	6.1-7.3	0	0	0	0
192:							
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
193:							
Lookingglass-----	0-22	10-35	6.1-7.3	0	0	0	0
	22-23	10-35	6.1-7.3	0	0	0	0
	23-42	25-35	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
194:							
Lookingglass-----	0-22	10-35	6.1-7.3	0	0	0	0
	22-23	10-35	6.1-7.3	0	0	0	0
	23-42	25-35	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
195:							
Lookingglass, stony--	0-22	10-35	6.1-7.3	0	0	0	0
	22-23	10-35	6.1-7.3	0	0	0	0
	23-42	25-35	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
196:							
Lookingglass, cobbly	0-22	10-35	6.1-7.3	0	0	0	0
	22-23	10-35	6.1-7.3	0	0	0	0
	23-42	25-35	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
Lookingglass-----	0-22	10-35	6.1-7.3	0	0	0	0
	22-23	10-35	6.1-7.3	0	0	0	0
	23-42	25-35	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
197:							
Lookingglass-----	0-22	10-35	6.1-7.3	0	0	0	0
	22-23	10-35	6.1-7.3	0	0	0	0
	23-42	25-35	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
198:							
Lookingglass-----	0-22	10-35	6.1-7.3	0	0	0	0
	22-23	10-35	6.1-7.3	0	0	0	0
	23-42	25-35	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
199:							
Lostine-----	0-12	10-20	6.1-7.8	0	0	0	0
	12-47	10-20	6.6-7.8	0	0	0	0
	47-60	10-15	6.6-7.8	0	0	0	0
	60-65	5.0-15	6.6-7.8	0	0	0	0
200:							
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Lawyer-----	0-4	10-15	6.1-7.3	0	0	0	0
	4-11	10-20	6.1-7.3	0	0	0	0
	11-23	15-20	6.6-7.3	0	0	0	0
	23-35	15-20	6.6-7.3	0	0	0	0
	35-44	20-25	6.6-7.8	0	0	0	0
	44-54	---	---	---	---	---	---
201:							
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
201:							
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
Lawyer-----	0-4	10-15	6.1-7.3	0	0	0	0
	4-11	10-20	6.1-7.3	0	0	0	0
	11-23	15-20	6.6-7.3	0	0	0	0
	23-35	15-20	6.6-7.3	0	0	0	0
	35-44	20-25	6.6-7.8	0	0	0	0
	44-54	---	---	---	---	---	---
202:							
Mallory-----	0-3	15-25	6.6-7.3	0	0	0	0
	3-8	15-25	6.6-7.3	0	0	0	0
	8-11	20-30	6.6-7.3	0	0	0	0
	11-18	25-35	6.6-7.3	0	0	0	0
	18-26	25-35	6.6-7.3	0	0	0	0
	26-36	---	---	---	---	---	---
Lawyer-----	0-4	10-15	6.1-7.3	0	0	0	0
	4-11	10-20	6.1-7.3	0	0	0	0
	11-23	15-20	6.6-7.3	0	0	0	0
	23-35	15-20	6.6-7.3	0	0	0	0
	35-44	20-25	6.6-7.8	0	0	0	0
	44-54	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
203:							
Matheny-----	0-4	10-25	6.6-7.3	0	0	0	0
	4-14	10-25	6.6-7.3	0	0	0	0
	14-22	20-35	6.6-7.8	0	0	0	0
	22-44	10-25	7.9-9.0	5-10	0	0.0-4.0	0
	44-57	---	---	---	---	---	---
Linville-----	0-18	10-20	6.6-7.3	0	0	0	0
	18-38	10-20	6.6-7.8	0	0	0	0
	38-47	10-15	6.6-7.8	0	0	0	0
	47-60	10-15	7.4-8.4	0	0	0.0-2.0	0
Laufer-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-8	15-25	6.6-7.8	0	0	0	0
	8-16	15-25	6.6-7.8	0	0	0	0
	16-26	---	---	---	---	---	---
204:							
Matterhorn-----	0-3	5.0-10	7.4-8.4	5-10	0	0.0-2.0	0
	3-10	5.0-10	7.4-8.4	5-10	0	0.0-2.0	0
	10-27	0.0-5.0	7.9-8.4	15-20	0	0.0-2.0	0
	27-46	0.0-5.0	7.9-8.4	15-20	0	0.0-2.0	0
	46-63	0.0-5.0	7.9-8.4	5-10	0	0.0-2.0	0
205:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
206:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
207:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
208:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
209:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
210:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
211:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
212:							
Minam-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
Minam, gravelly-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
Endoaquepts-----	0-5	20-30	6.6-7.3	0	0	0	0
	5-21	15-30	6.6-7.3	0	0	0	0
	21-42	10-20	6.6-7.3	0	0	0	0
	42-56	10-20	6.6-7.3	0	0	0	0
	56-62	10-20	6.6-7.3	0	0	0	0
213:							
Minam, gravelly-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
Minam, stony-----	0-19	25-45	6.1-7.8	0	0	0	0
	19-35	20-40	6.1-7.3	0	0	0	0
	35-60	20-40	6.1-7.3	0	0	0	0
Endoaquepts-----	0-5	20-30	6.6-7.3	0	0	0	0
	5-21	15-30	6.6-7.3	0	0	0	0
	21-42	10-20	6.6-7.3	0	0	0	0
	42-56	10-20	6.6-7.3	0	0	0	0
	56-62	10-20	6.6-7.3	0	0	0	0
214:							
Mippon-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-6	5.0-10	6.1-7.3	0	0	0	0
	6-10	5.0-10	6.1-7.3	0	0	0	0
	10-21	5.0-10	6.1-7.3	0	0	0	0
	21-60	5.0-10	6.1-7.3	0	0	0	0
215:							
Mountemily-----	0-4	10-25	5.6-6.0	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-29	10-25	5.6-6.5	0	0	0	0
	29-60	10-35	5.6-6.5	0	0	0	0
Troutmeadows-----	0-3	10-25	5.6-6.5	0	0	0	0
	3-16	10-25	5.6-6.5	0	0	0	0
	16-30	10-20	5.6-6.5	0	0	0	0
	30-40	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
216:							
Mountemily-----	0-4	10-25	5.6-6.0	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-29	10-25	5.6-6.5	0	0	0	0
	29-60	10-35	5.6-6.5	0	0	0	0
Troutmeadows-----	0-3	10-25	5.6-6.5	0	0	0	0
	3-16	10-25	5.6-6.5	0	0	0	0
	16-30	10-20	5.6-6.5	0	0	0	0
	30-40	---	---	---	---	---	---
217:							
Mountemily-----	0-4	10-25	5.6-6.0	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-29	10-25	5.6-6.5	0	0	0	0
	29-60	10-35	5.6-6.5	0	0	0	0
Troutmeadows-----	0-3	10-25	5.6-6.5	0	0	0	0
	3-16	10-25	5.6-6.5	0	0	0	0
	16-30	10-20	5.6-6.5	0	0	0	0
	30-40	---	---	---	---	---	---
218:							
Mountemily-----	0-4	10-25	5.6-6.0	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-29	10-25	5.6-6.5	0	0	0	0
	29-60	10-35	5.6-6.5	0	0	0	0
Troutmeadows-----	0-3	10-25	5.6-6.5	0	0	0	0
	3-16	10-25	5.6-6.5	0	0	0	0
	16-30	10-20	5.6-6.5	0	0	0	0
	30-40	---	---	---	---	---	---
Anatone, cold-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
219:							
Needhill-----	0-9	10-15	5.6-6.5	0	0	0	0
	9-20	15-20	5.6-6.5	0	0	0	0
	20-35	15-20	5.6-6.5	0	0	0	0
	35-53	20-30	5.6-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Parsnip-----	0-6	25-35	6.1-7.3	0	0	0	0
	6-9	25-35	6.1-7.3	0	0	0	0
	9-13	30-40	6.1-7.3	0	0	0	0
	13-23	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
220:							
Needhill-----	0-9	10-15	5.6-6.5	0	0	0	0
	9-20	15-20	5.6-6.5	0	0	0	0
	20-35	15-20	5.6-6.5	0	0	0	0
	35-53	20-30	5.6-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
Zumwalt-----	0-7	30-40	6.1-7.3	0	0	0	0
	7-9	30-40	6.1-7.3	0	0	0	0
	9-21	50-60	6.6-7.8	0	0	0	0
	21-37	50-60	7.4-8.4	0-2	0	0.0-2.0	0
	37-47	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
221: Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
222: Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
223: Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
224: Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
225: Parsnip-----	0-6	25-35	6.1-7.3	0	0	0	0
	6-9	25-35	6.1-7.3	0	0	0	0
	9-13	30-40	6.1-7.3	0	0	0	0
	13-23	---	---	---	---	---	---
226: Parsnip-----	0-6	25-35	6.1-7.3	0	0	0	0
	6-9	25-35	6.1-7.3	0	0	0	0
	9-13	30-40	6.1-7.3	0	0	0	0
	13-23	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
227: Phys-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-16	10-15	6.6-7.3	0	0	0	0
	16-23	15-20	6.6-7.3	0	0	0	0
	23-60	10-15	6.6-7.8	0	0	0	0
228: Phys-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-16	10-15	6.6-7.3	0	0	0	0
	16-23	15-20	6.6-7.3	0	0	0	0
	23-60	10-15	6.6-7.8	0	0	0	0
Doublecreek-----	0-4	10-15	6.1-7.8	0	0	0	0
	4-16	10-15	6.1-7.8	0	0	0	0
	16-22	15-20	6.6-7.8	0	0	0	0
	22-40	15-20	6.6-7.8	0	0	0	0
	40-61	15-20	6.6-8.4	0	0	0.0-2.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
228: Collegecreek-----	0-8	10-25	6.1-7.3	0	0	0	0
	8-24	10-25	6.6-7.8	0	0	0	0
	24-28	10-25	6.6-8.4	0	0	0	0
	28-41	10-25	6.6-8.4	0	0	0	0
	41-61	5.0-25	7.4-8.4	0	0	0	0
229: Phys-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-16	10-15	6.6-7.3	0	0	0	0
	16-23	15-20	6.6-7.3	0	0	0	0
	23-60	10-15	6.6-7.8	0	0	0	0
Doublecreek-----	0-4	10-15	6.1-7.8	0	0	0	0
	4-16	10-15	6.1-7.8	0	0	0	0
	16-22	15-20	6.6-7.8	0	0	0	0
	22-40	15-20	6.6-7.8	0	0	0	0
	40-61	15-20	6.6-8.4	0	0	0.0-2.0	0
Collegecreek-----	0-8	10-25	6.1-7.3	0	0	0	0
	8-24	10-25	6.6-7.8	0	0	0	0
	24-28	10-25	6.6-8.4	0	0	0	0
	28-41	10-25	6.6-8.4	0	0	0	0
	41-61	5.0-25	7.4-8.4	0	0	0	0
230: Powwatka-----	0-14	25-35	6.1-7.3	0	0	0	0
	14-24	30-45	6.6-7.8	0	0	0	0
	24-34	---	---	---	---	---	---
231: Powwatka-----	0-14	25-35	6.1-7.3	0	0	0	0
	14-24	30-45	6.6-7.8	0	0	0	0
	24-34	---	---	---	---	---	---
232: Powwatka-----	0-14	25-35	6.1-7.3	0	0	0	0
	14-24	30-45	6.6-7.8	0	0	0	0
	24-34	---	---	---	---	---	---
233: Powwatka-----	0-14	25-35	6.1-7.3	0	0	0	0
	14-24	30-45	6.6-7.8	0	0	0	0
	24-34	---	---	---	---	---	---
234: Puzzlecreek-----	0-9	10-25	5.6-6.5	0	0	0	0
	9-13	10-25	5.6-6.5	0	0	0	0
	13-39	10-25	5.6-6.5	0	0	0	0
	39-49	---	---	---	---	---	---
235: Ramo-----	0-18	20-30	6.1-7.3	0	0	0	0
	18-41	25-30	6.1-7.3	0	0	0	0
	41-65	20-30	6.1-7.3	0	0	0	0
236: Ramo-----	0-18	20-30	6.1-7.3	0	0	0	0
	18-41	25-30	6.1-7.3	0	0	0	0
	41-65	20-30	6.1-7.3	0	0	0	0
237: Ramo-----	0-18	20-30	6.1-7.3	0	0	0	0
	18-41	25-30	6.1-7.3	0	0	0	0
	41-65	20-30	6.1-7.3	0	0	0	0
238: Ramo-----	0-18	20-30	6.1-7.3	0	0	0	0
	18-41	25-30	6.1-7.3	0	0	0	0
	41-65	20-30	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
238:							
Conley-----	0-14	20-30	6.6-7.3	0	0	0	0
	14-23	15-20	6.6-7.3	0	0	0	0
	23-40	30-35	6.6-7.8	0	0	0.0-2.0	0
	40-60	20-25	6.6-7.8	0	0	0.0-2.0	0
239:							
Reavis-----	0-15	15-20	6.1-7.3	0	0	0	0
	15-34	10-20	6.1-7.3	0	0	0	0
	34-41	10-15	6.1-7.3	0	0	0	0
	41-60	10-15	7.4-8.4	20-30	0	0.0-2.0	0
240:							
Redmount-----	0-12	10-15	6.6-7.8	0	0	0	0
	12-20	5.0-15	6.6-7.8	0	0	0	0
	20-32	5.0-15	6.6-7.8	0	0	0	0
	32-60	0.0-5.0	6.6-7.8	0	0	0	0
241:							
Redmount-----	0-12	10-15	6.6-7.8	0	0	0	0
	12-20	5.0-15	6.6-7.8	0	0	0	0
	20-32	5.0-15	6.6-7.8	0	0	0	0
	32-60	0.0-5.0	6.6-7.8	0	0	0	0
242:							
Redmount-----	0-12	10-15	6.6-7.8	0	0	0	0
	12-20	5.0-15	6.6-7.8	0	0	0	0
	20-32	5.0-15	6.6-7.8	0	0	0	0
	32-60	0.0-5.0	6.6-7.8	0	0	0	0
243:							
Redmount-----	0-12	10-15	6.6-7.8	0	0	0	0
	12-20	5.0-15	6.6-7.8	0	0	0	0
	20-32	5.0-15	6.6-7.8	0	0	0	0
	32-60	0.0-5.0	6.6-7.8	0	0	0	0
Cheval-----	0-15	10-20	7.9-8.4	1-2	0	0.0-2.0	0
	15-24	5.0-15	7.9-8.4	1-2	0	0.0-2.0	0
	24-31	5.0-15	7.9-8.4	1-2	0	0.0-2.0	0
	31-60	5.0-10	7.9-8.4	1-2	0	0.0-2.0	0
244:							
Riverwash-----	0-60	---	---	---	---	---	---
245:							
Rock outcrop, limestone-----	0-60	---	---	---	---	---	---
246:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Fivebit-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-9	10-20	5.6-7.3	0	0	0	0
	9-15	15-20	5.6-7.3	0	0	0	0
	15-19	15-20	5.6-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
247:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
247:							
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
248:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
249:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Cherrycreek-----	0-9	40-60	6.1-7.3	0	0	0	0
	9-28	30-50	6.1-7.3	0	0	0	0
	28-43	20-30	6.1-7.3	0	0	0	0
	43-53	20-30	6.1-7.3	0	0	0	0
	53-63	---	---	---	---	---	---
250:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
251:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Dixiejett-----	0-6	10-30	6.6-7.8	0	0	0	0
	6-10	10-30	6.6-7.8	0	0	0	0
	10-18	20-35	6.6-8.4	0	0	0.0-2.0	0
	18-27	20-35	6.6-8.4	0	0	0.0-2.0	0
	27-43	10-35	6.6-8.4	0	0	0.0-2.0	0
	43-53	---	---	---	---	---	---
252:							
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
252: Rock outcrop-----	0-60	---	---	---	---	---	---
Copperfield-----	0-4	10-15	6.6-7.3	0	0	0	0
	4-22	10-20	6.6-7.3	0	0	0	0
	22-42	15-20	6.1-7.3	0	0	0	0
	42-60	20-25	6.1-7.3	0	0	0	0
253: Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
Licksillet-----	0-7	0.0-5.0	6.1-8.4	0	0	0.0-2.0	0
	7-19	5.0-15	6.6-8.4	0-2	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
254: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
255: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
256: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
257: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
258: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
259: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
260: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
261: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
262: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
263: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
264: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
265: Rondowa-----	0-10	10-15	6.1-7.3	0	0	0	0
	10-26	5.0-10	6.1-7.3	0	0	0	0
	26-60	5.0-10	6.1-7.3	0	0	0	0
266: Rubble land-----	0-60	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
267: Sag-----	0-4	10-20	6.1-7.3	0	0	0	0
	4-30	10-20	6.1-7.3	0	0	0	0
	30-37	15-20	6.1-7.3	0	0	0	0
	37-47	20-30	6.6-7.8	0	0	0	0
	47-61	20-30	6.6-7.8	0	0	0	0
268: Sag-----	0-4	10-20	6.1-7.3	0	0	0	0
	4-30	10-20	6.1-7.3	0	0	0	0
	30-37	15-20	6.1-7.3	0	0	0	0
	37-47	20-30	6.6-7.8	0	0	0	0
	47-61	20-30	6.6-7.8	0	0	0	0
269: Sag-----	0-4	10-20	6.1-7.3	0	0	0	0
	4-30	10-20	6.1-7.3	0	0	0	0
	30-37	15-20	6.1-7.3	0	0	0	0
	37-47	20-30	6.6-7.8	0	0	0	0
	47-61	20-30	6.6-7.8	0	0	0	0
270: Schrier-----	0-23	10-15	6.6-7.3	0	0	0	0
	23-34	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	34-43	10-15	7.4-8.4	5-10	0	0.0-2.0	0
	43-60	10-15	7.4-8.4	0-5	0	0.0-2.0	0
271: Schrier-----	0-23	10-15	6.6-7.3	0	0	0	0
	23-34	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	34-43	10-15	7.4-8.4	5-10	0	0.0-2.0	0
	43-60	10-15	7.4-8.4	0-5	0	0.0-2.0	0
Almota-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-19	10-20	7.4-8.4	0	0	0	0
	19-29	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	29-38	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	38-48	---	---	---	---	---	---
272: Schrier-----	0-23	10-15	6.6-7.3	0	0	0	0
	23-34	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	34-43	10-15	7.4-8.4	5-10	0	0.0-2.0	0
	43-60	10-15	7.4-8.4	0-5	0	0.0-2.0	0
Almota-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-19	10-20	7.4-8.4	0	0	0	0
	19-29	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	29-38	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	38-48	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
273:							
Schuelke-----	0-5	35-45	7.4-7.8	0	0	0	0
	5-12	30-40	7.4-8.4	0	0	0	0
	12-22	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	22-33	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	33-43	---	---	---	---	---	---
Schrier-----	0-23	10-15	6.6-7.3	0	0	0	0
	23-34	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	34-43	10-15	7.4-8.4	5-10	0	0.0-2.0	0
	43-60	10-15	7.4-8.4	0-5	0	0.0-2.0	0
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
274:							
Silverlake-----	0-8	15-20	6.6-7.8	0	0	0	0
	8-12	15-20	6.6-7.8	0	0	0	0
	12-18	30-35	7.4-8.4	5-10	0	0.0-2.0	0
	18-24	30-35	7.4-8.4	5-10	0	0.0-2.0	0
	24-31	20-25	7.4-8.4	5-10	0	0.0-2.0	0
	31-42	20-25	7.4-8.4	5-10	0	0.0-2.0	0
	42-57	---	---	---	---	---	---
	57-63	0.0-5.0	7.4-8.4	0	0	0	0
275:							
Slicklog-----	0-6	10-25	5.6-6.5	0	0	0	0
	6-16	10-25	5.6-6.5	0	0	0	0
	16-22	10-25	6.1-7.3	0	0	0	0
	22-49	10-25	6.1-7.3	0	0	0	0
	49-60	10-25	6.1-7.3	0	0	0	0
276:							
Slicklog-----	0-6	10-25	5.6-6.5	0	0	0	0
	6-16	10-25	5.6-6.5	0	0	0	0
	16-22	10-25	6.1-7.3	0	0	0	0
	22-49	10-25	6.1-7.3	0	0	0	0
	49-60	10-25	6.1-7.3	0	0	0	0
Eastpine-----	0-14	10-20	6.1-7.3	0	0	0	0
	14-26	5.0-15	5.6-7.3	0	0	0	0
	26-38	5.0-15	5.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
277:							
Slicklog-----	0-6	10-25	5.6-6.5	0	0	0	0
	6-16	10-25	5.6-6.5	0	0	0	0
	16-22	10-25	6.1-7.3	0	0	0	0
	22-49	10-25	6.1-7.3	0	0	0	0
	49-60	10-25	6.1-7.3	0	0	0	0
Eastpine-----	0-14	10-20	6.1-7.3	0	0	0	0
	14-26	5.0-15	5.6-7.3	0	0	0	0
	26-38	5.0-15	5.6-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
278:							
Slicklog-----	0-6	10-25	5.6-6.5	0	0	0	0
	6-16	10-25	5.6-6.5	0	0	0	0
	16-22	10-25	6.1-7.3	0	0	0	0
	22-49	10-25	6.1-7.3	0	0	0	0
	49-60	10-25	6.1-7.3	0	0	0	0
Wintercanyon-----	0-9	10-20	5.6-6.5	0	0	0	0
	9-18	5.0-15	5.1-6.5	0	0	0	0
	18-28	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
279:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
280:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
281:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
282:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
283:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
284:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-35	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
285:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
286:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
287:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
288:							
Snell-----	0-4	20-30	5.6-7.3	0	0	0	0
	4-9	20-30	5.6-7.3	0	0	0	0
	9-18	30-35	5.6-7.3	0	0	0	0
	18-24	30-35	5.6-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Imnaha-----	0-5	20-30	5.6-7.3	0	0	0	0
	5-17	20-30	5.6-7.3	0	0	0	0
	17-21	25-35	6.1-7.3	0	0	0	0
	21-24	25-35	6.1-7.3	0	0	0	0
	24-34	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
289:							
Snow-----	0-18	15-25	6.6-7.8	0	0	0	0
	18-36	20-30	6.6-7.8	0	0	0	0
	36-60	15-25	6.6-8.4	0-5	0	0.0-2.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
290: Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
291: Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
292: Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
293: Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
294: Sopher-----	0-2	15-25	6.1-7.3	0	0	0	0
	2-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-25	6.1-7.3	0	0	0	0
	18-24	25-35	6.1-7.3	0	0	0	0
	24-44	25-35	6.1-7.3	0	0	0	0
	44-54	---	---	---	---	---	---
Gwinly-----	0-4	15-25	6.6-7.8	0	0	0	0
	4-10	20-30	6.6-7.3	0	0	0	0
	10-17	30-35	6.6-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
295: Sturgill-----	0-8	20-30	6.6-7.3	0	0	0	0
	8-23	15-30	6.6-7.3	0	0	0	0
	23-38	10-20	6.6-7.3	0	0	0	0
	38-44	10-20	6.6-7.3	0	0	0	0
	44-60	10-20	6.6-7.3	0	0	0	0
296: Sturgill-----	0-8	20-30	6.6-7.3	0	0	0	0
	8-23	15-30	6.6-7.3	0	0	0	0
	23-38	10-20	6.6-7.3	0	0	0	0
	38-44	10-20	6.6-7.3	0	0	0	0
	44-60	10-20	6.6-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
296: Eggleston-----	0-3	5.0-10	6.1-7.3	0	0	0	0
	3-10	5.0-10	6.6-7.3	0	0	0	0
	10-17	0.0-5.0	6.6-7.8	0	0	0	0
	17-30	0.0-5.0	6.6-7.8	0	0	0	0
	30-60	0.0-5.0	6.6-7.8	0	0	0	0
297: Sweitberg-----	0-18	20-35	6.1-7.3	0	0	0	0
	18-20	30-50	6.1-7.3	0	0	0	0
	20-29	30-50	6.1-7.3	0	0	0	0
	29-35	35-55	6.1-7.3	0	0	0	0
	35-45	---	---	---	---	---	---
298: Sweitberg-----	0-18	20-35	6.1-7.3	0	0	0	0
	18-20	30-50	6.1-7.3	0	0	0	0
	20-29	30-50	6.1-7.3	0	0	0	0
	29-35	35-55	6.1-7.3	0	0	0	0
	35-45	---	---	---	---	---	---
299: Sweiting-----	0-8	15-30	5.6-6.5	0	0	0	0
	8-13	25-35	5.6-6.5	0	0	0	0
	13-22	25-35	5.6-6.5	0	0	0	0
	22-32	25-35	5.6-6.5	0	0	0	0
	32-42	---	---	---	---	---	---
300: Sweiting-----	0-8	15-30	5.6-6.5	0	0	0	0
	8-13	25-35	5.6-6.5	0	0	0	0
	13-22	25-35	5.6-6.5	0	0	0	0
	22-32	25-35	5.6-6.5	0	0	0	0
	32-42	---	---	---	---	---	---
301: Sweiting-----	0-8	15-30	5.6-6.5	0	0	0	0
	8-13	25-35	5.6-6.5	0	0	0	0
	13-22	25-35	5.6-6.5	0	0	0	0
	22-32	25-35	5.6-6.5	0	0	0	0
	32-42	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
302: Sweiting-----	0-8	15-30	5.6-6.5	0	0	0	0
	8-13	25-35	5.6-6.5	0	0	0	0
	13-22	25-35	5.6-6.5	0	0	0	0
	22-32	25-35	5.6-6.5	0	0	0	0
	32-42	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
303: Sweiting-----	0-8	15-30	5.6-6.5	0	0	0	0
	8-13	25-35	5.6-6.5	0	0	0	0
	13-22	25-35	5.6-6.5	0	0	0	0
	22-32	25-35	5.6-6.5	0	0	0	0
	32-42	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
303: Klicker-----	0-3	10-30	6.1-7.3	0	0	0	0
	3-10	10-20	6.1-6.5	0	0	0	0
	10-18	10-30	6.1-6.5	0	0	0	0
	18-24	10-30	6.1-6.5	0	0	0	0
	24-34	---	---	---	---	---	---
304: Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
305: Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
Anatone-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-6	15-25	6.1-7.3	0	0	0	0
	6-12	15-30	6.1-7.3	0	0	0	0
	12-22	---	---	---	---	---	---
306: Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
Lowerbluff-----	0-6	40-50	5.1-6.5	0	0	0	0
	6-15	20-30	5.1-6.5	0	0	0	0
	15-25	---	---	---	---	---	---
307: Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
Tamara-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-15	10-25	5.6-6.5	0	0	0	0
	15-30	10-25	5.6-6.5	0	0	0	0
	30-51	10-25	5.6-6.5	0	0	0	0
	51-60	10-25	6.1-7.3	0	0	0	0
308: Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
Tamara-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-15	10-25	5.6-6.5	0	0	0	0
	15-30	10-25	5.6-6.5	0	0	0	0
	30-51	10-25	5.6-6.5	0	0	0	0
	51-60	10-25	6.1-7.3	0	0	0	0
309: Tamara-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-15	10-25	5.6-6.5	0	0	0	0
	15-30	10-25	5.6-6.5	0	0	0	0
	30-51	10-25	5.6-6.5	0	0	0	0
	51-60	10-25	6.1-7.3	0	0	0	0



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
309:							
Sherod-----	0-5	25-35	6.1-7.3	0	0	0	0
	5-8	20-30	6.1-7.3	0	0	0	0
	8-17	20-30	6.1-7.3	0	0	0	0
	17-19	20-30	6.1-7.3	0	0	0	0
	19-29	---	---	---	---	---	---
310:							
Tamara-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-15	10-25	5.6-6.5	0	0	0	0
	15-30	10-25	5.6-6.5	0	0	0	0
	30-51	10-25	5.6-6.5	0	0	0	0
	51-60	10-25	6.1-7.3	0	0	0	0
Syrupcreek-----	0-3	10-25	5.6-7.3	0	0	0	0
	3-14	10-25	5.6-7.3	0	0	0	0
	14-22	20-30	5.6-7.3	0	0	0	0
	22-28	20-30	5.6-7.3	0	0	0	0
	28-38	---	---	---	---	---	---
311:							
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
312:							
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Lowerbluff-----	0-6	40-50	5.1-6.5	0	0	0	0
	6-15	20-30	5.1-6.5	0	0	0	0
	15-25	---	---	---	---	---	---
313:							
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
314:							
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
315:							
Tannahill-----	0-4	10-30	7.4-8.4	0	0	0	0
	4-10	10-30	7.4-8.4	0	0	0	0
	10-16	10-35	7.4-8.4	0	0	0	0
	16-29	10-35	7.4-8.4	0	0	0	0
	29-41	10-35	7.9-8.4	5-15	0	0.0-2.0	0-5
	41-48	10-35	7.9-8.4	5-15	0	0.0-2.0	0-5
	48-58	---	---	---	---	---	---
Schrier-----	0-23	10-15	6.6-7.3	0	0	0	0
	23-34	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	34-43	10-15	7.4-8.4	5-10	0	0.0-2.0	0
	43-60	10-15	7.4-8.4	0-5	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
316:							
Tannahill-----	0-4	10-30	7.4-8.4	0	0	0	0
	4-10	10-30	7.4-8.4	0	0	0	0
	10-16	10-35	7.4-8.4	0	0	0	0
	16-29	10-35	7.4-8.4	0	0	0	0
	29-41	10-35	7.9-8.4	5-15	0	0.0-2.0	0-5
	41-48	10-35	7.9-8.4	5-15	0	0.0-2.0	0-5
	48-58	---	---	---	---	---	---
Schuelke-----	0-5	35-45	7.4-7.8	0	0	0	0
	5-12	30-40	7.4-8.4	0	0	0	0
	12-22	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	22-33	10-20	7.9-9.0	15-30	0	0.0-4.0	0
	33-43	---	---	---	---	---	---
Licksillet-----	0-7	0.0-5.0	6.1-8.4	0	0	0.0-2.0	0
	7-19	5.0-15	6.6-8.4	0-2	0	0.0-2.0	0
	19-29	---	---	---	---	---	---
317:							
Thiessen-----	0-3	16-22	6.6-7.3	0	0	0	0
	3-6	24-30	6.6-7.3	0	0	0	0
	6-14	24-32	6.6-7.8	0	0	0	0
	14-23	24-32	6.6-7.8	0	0	0	0
	23-34	24-32	6.6-7.8	0	0	0	0
	34-44	---	---	---	---	---	---
318:							
Threebuck-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-25	25-40	5.6-6.5	0	0	0	0
	25-36	25-40	5.6-6.5	0	0	0	0
	36-47	50-75	6.1-7.3	0	0	0	0
	47-57	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
318:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
319:							
Threebuck-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-25	25-40	5.6-6.5	0	0	0	0
	25-36	25-40	5.6-6.5	0	0	0	0
	36-47	50-75	6.1-7.3	0	0	0	0
	47-57	---	---	---	---	---	---
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
320:							
Threebuck-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-25	25-40	5.6-6.5	0	0	0	0
	25-36	25-40	5.6-6.5	0	0	0	0
	36-47	50-75	6.1-7.3	0	0	0	0
	47-57	---	---	---	---	---	---
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
321:							
Threebuck-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-25	25-40	5.6-6.5	0	0	0	0
	25-36	25-40	5.6-6.5	0	0	0	0
	36-47	50-75	6.1-7.3	0	0	0	0
	47-57	---	---	---	---	---	---
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
322:							
Threebuck-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-25	25-40	5.6-6.5	0	0	0	0
	25-36	25-40	5.6-6.5	0	0	0	0
	36-47	50-75	6.1-7.3	0	0	0	0
	47-57	---	---	---	---	---	---
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
322: Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
323: Threebuck-----	0-4	10-25	5.6-6.5	0	0	0	0
	4-14	10-25	5.6-6.5	0	0	0	0
	14-25	25-40	5.6-6.5	0	0	0	0
	25-36	25-40	5.6-6.5	0	0	0	0
	36-47	50-75	6.1-7.3	0	0	0	0
	47-57	---	---	---	---	---	---
Tamarackcanyon-----	0-4	10-35	5.6-6.5	0	0	0	0
	4-9	10-35	5.6-6.5	0	0	0	0
	9-13	10-35	5.6-6.5	0	0	0	0
	13-25	10-35	5.6-6.5	0	0	0	0
	25-38	50-75	6.1-7.3	0	0	0	0
	38-48	---	---	---	---	---	---
Linecreek-----	0-9	30-40	6.1-7.8	0	0	0	0
	9-22	15-25	6.1-7.8	0	0	0	0
	22-35	15-25	6.6-7.8	0	0	0	0
	35-50	15-25	6.6-7.8	0	0	0	0
	50-61	10-20	6.6-7.8	0	0	0	0
324: Tippett-----	0-10	20-25	6.6-7.8	0	0	0	0
	10-14	20-25	6.6-7.8	0	0	0	0
	14-16	15-20	6.6-7.8	0	0	0	0
	16-30	30-35	7.4-8.4	0	0	0	0
	30-51	30-40	7.4-8.4	0-10	0	0.0-2.0	0
	51-60	30-40	7.4-8.4	0-10	0	0.0-2.0	0
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
325: Tippett-----	0-10	20-25	6.6-7.8	0	0	0	0
	10-14	20-25	6.6-7.8	0	0	0	0
	14-16	15-20	6.6-7.8	0	0	0	0
	16-30	30-35	7.4-8.4	0	0	0	0
	30-51	30-40	7.4-8.4	0-10	0	0.0-2.0	0
	51-60	30-40	7.4-8.4	0-10	0	0.0-2.0	0
Zumwalt-----	0-7	30-40	6.1-7.3	0	0	0	0
	7-9	30-40	6.1-7.3	0	0	0	0
	9-21	50-60	6.6-7.8	0	0	0	0
	21-37	50-60	7.4-8.4	0-2	0	0.0-2.0	0
	37-47	---	---	---	---	---	---
326: Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
327: Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
328: Tolo, fan-----	0-26	10-25	5.6-7.3	0	0	0	0
	26-37	10-25	5.6-7.3	0	0	0	0
	37-60	10-25	5.6-7.3	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
329:							
Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
330:							
Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
331:							
Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
332:							
Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
Getaway-----	0-6	10-20	5.6-7.3	0	0	0	0
	6-13	10-20	5.6-7.3	0	0	0	0
	13-34	15-25	5.6-7.3	0	0	0	0
	34-48	15-25	5.6-7.3	0	0	0	0
	48-58	---	---	---	---	---	---
333:							
Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
334:							
Tolo-----	0-20	10-25	5.6-7.3	0	0	0	0
	20-33	10-25	5.6-7.3	0	0	0	0
	33-60	10-25	5.6-7.3	0	0	0	0
Olot-----	0-19	10-25	6.1-7.3	0	0	0	0
	19-22	10-25	6.1-7.3	0	0	0	0
	22-36	10-25	6.1-7.3	0	0	0	0
	36-46	---	---	---	---	---	---
335:							
Topper-----	0-11	10-25	6.6-7.3	0	0	0	0
	11-25	10-15	6.6-7.8	0	0	0	0
	25-35	10-15	7.9-9.0	15-20	0	0.0-2.0	0
	35-60	10-15	7.9-9.0	15-20	0	0.0-2.0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
336:							
Topper-----	0-11	10-25	6.6-7.3	0	0	0	0
	11-25	10-15	6.6-7.8	0	0	0	0
	25-35	10-15	7.9-9.0	15-20	0	0.0-2.0	0
	35-60	10-15	7.9-9.0	15-20	0	0.0-2.0	0
337:							
Topper-----	0-11	10-25	6.6-7.3	0	0	0	0
	11-25	10-15	6.6-7.8	0	0	0	0
	25-35	10-15	7.9-9.0	15-20	0	0.0-2.0	0
	35-60	10-15	7.9-9.0	15-20	0	0.0-2.0	0
338:							
Topper-----	0-11	10-25	6.6-7.3	0	0	0	0
	11-25	10-15	6.6-7.8	0	0	0	0
	25-35	10-15	7.9-9.0	15-20	0	0.0-2.0	0
	35-60	10-15	7.9-9.0	15-20	0	0.0-2.0	0
339:							
Troutmeadows-----	0-3	10-25	5.6-6.5	0	0	0	0
	3-16	10-25	5.6-6.5	0	0	0	0
	16-30	10-20	5.6-6.5	0	0	0	0
	30-40	---	---	---	---	---	---
Crawfish-----	0-3	10-20	5.6-6.0	0	0	0	0
	3-9	5.0-15	5.6-6.0	0	0	0	0
	9-19	---	---	---	---	---	---
340:							
Tuckerdowns-----	0-3	5.0-15	7.4-8.4	0	0	0	0
	3-10	5.0-15	7.4-8.4	0	0	0	0
	10-17	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	17-33	10-15	7.9-8.4	15-20	0	0.0-2.0	0
	33-60	5.0-10	7.9-8.4	15-20	0	0.0-2.0	0
341:							
Tuckerdowns-----	0-3	5.0-15	7.4-8.4	0	0	0	0
	3-10	5.0-15	7.4-8.4	0	0	0	0
	10-17	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	17-33	10-15	7.9-8.4	15-20	0	0.0-2.0	0
	33-60	5.0-10	7.9-8.4	15-20	0	0.0-2.0	0
342:							
Tuckerdowns-----	0-3	5.0-15	7.4-8.4	0	0	0	0
	3-10	5.0-15	7.4-8.4	0	0	0	0
	10-17	10-15	7.4-8.4	0-5	0	0.0-2.0	0
	17-33	10-15	7.9-8.4	15-20	0	0.0-2.0	0
	33-60	5.0-10	7.9-8.4	15-20	0	0.0-2.0	0
343:							
Vandamine-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-13	10-25	6.1-7.3	0	0	0	0
	13-28	5.0-15	5.1-6.5	0	0	0	0
	28-39	5.0-15	5.1-6.5	0	0	0	0
	39-60	5.0-15	5.1-6.5	0	0	0	0
Bordengulch-----	0-6	10-25	6.1-7.3	0	0	0	0
	6-13	10-25	6.1-7.3	0	0	0	0
	13-25	5.0-15	5.1-6.5	0	0	0	0
	25-35	5.0-15	5.1-6.5	0	0	0	0
	35-45	---	---	---	---	---	---
344:							
Vandamine-----	0-7	10-25	6.1-7.3	0	0	0	0
	7-13	10-25	6.1-7.3	0	0	0	0
	13-28	5.0-15	5.1-6.5	0	0	0	0
	28-39	5.0-15	5.1-6.5	0	0	0	0
	39-60	5.0-15	5.1-6.5	0	0	0	0

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
344:							
Bordengulch-----	0-6	10-25	6.1-7.3	0	0	0	0
	6-13	10-25	6.1-7.3	0	0	0	0
	13-25	5.0-15	5.1-6.5	0	0	0	0
	25-35	5.0-15	5.1-6.5	0	0	0	0
	35-45	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
345:							
Veazie-----	0-19	5.0-15	6.6-7.3	0	0	0	0
	19-28	5.0-10	6.6-7.3	0	0	0	0
	28-34	0.0-5.0	6.6-7.3	0	0	0	0
	34-60	0.0-5.0	6.6-7.3	0	0	0	0
346:							
Voats-----	0-15	5.0-10	6.6-7.3	0	0	0	0
	15-60	0.0-5.0	6.6-7.3	0	0	0	0
Veazie-----	0-19	5.0-15	6.6-7.3	0	0	0	0
	19-28	5.0-10	6.6-7.3	0	0	0	0
	28-34	0.0-5.0	6.6-7.3	0	0	0	0
	34-60	0.0-5.0	6.6-7.3	0	0	0	0
347:							
Volstead-----	0-9	10-25	6.1-7.3	0	0	0	0
	9-13	10-25	6.1-7.3	0	0	0	0
	13-23	10-35	6.6-7.3	0	0	0	0
	23-38	20-50	6.6-7.8	0	0	0	0
	38-48	20-50	6.6-7.8	0	0	0	0
	48-58	---	---	---	---	---	---
Quirk-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-21	10-35	6.6-7.3	0	0	0	0
	21-33	30-50	6.6-7.8	0	0	0	0
	33-37	30-50	6.6-7.8	0	0	0	0
	37-47	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
348:							
Volstead-----	0-9	10-25	6.1-7.3	0	0	0	0
	9-13	10-25	6.1-7.3	0	0	0	0
	13-23	10-35	6.6-7.3	0	0	0	0
	23-38	20-50	6.6-7.8	0	0	0	0
	38-48	20-50	6.6-7.8	0	0	0	0
	48-58	---	---	---	---	---	---
Quirk-----	0-12	10-25	6.1-7.3	0	0	0	0
	12-21	10-35	6.6-7.3	0	0	0	0
	21-33	30-50	6.6-7.8	0	0	0	0
	33-37	30-50	6.6-7.8	0	0	0	0
	37-47	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
349:							
Wallowa-----	0-11	25-35	6.1-7.3	0	0	0	0
	11-29	20-30	6.1-7.3	0	0	0	0
	29-39	---	---	---	---	---	---
Bocker-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-7	10-20	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---

Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
350:							
Watama-----	0-5	5.0-15	6.6-7.3	0	0	0	0
	5-10	5.0-15	6.6-7.3	0	0	0	0
	10-25	10-15	6.6-7.8	0	0	0	0
	25-35	---	---	---	---	---	---
351:							
Watama-----	0-5	5.0-15	6.6-7.3	0	0	0	0
	5-10	5.0-15	6.6-7.3	0	0	0	0
	10-25	10-15	6.6-7.8	0	0	0	0
	25-35	---	---	---	---	---	---
352:							
Watama-----	0-5	5.0-15	6.6-7.3	0	0	0	0
	5-10	5.0-15	6.6-7.3	0	0	0	0
	10-25	10-15	6.6-7.8	0	0	0	0
	25-35	---	---	---	---	---	---
Rockly-----	0-3	15-25	6.1-7.3	0	0	0	0
	3-7	15-25	6.1-7.3	0	0	0	0
	7-17	---	---	---	---	---	---
353:							
Water-----	---	---	---	---	---	---	---
354:							
Wilkins-----	0-19	15-35	5.6-7.3	0	0	0	0
	19-25	15-20	5.6-7.3	0	0	0	0
	25-52	30-40	5.6-7.3	0	0	0	0
	52-70	10-25	5.6-6.0	0	0	0	0
	70-76	10-25	5.6-6.0	0	0	0	0
355:							
Wilkins-----	0-19	15-35	5.6-7.3	0	0	0	0
	19-25	15-20	5.6-7.3	0	0	0	0
	25-52	30-40	5.6-7.3	0	0	0	0
	52-70	10-25	5.6-6.0	0	0	0	0
	70-76	10-25	5.6-6.0	0	0	0	0
Feaginranch-----	0-13	20-35	5.6-7.3	0	0	0	0
	13-20	15-25	5.6-7.3	0	0	0	0
	20-24	15-25	5.6-7.3	0	0	0	0
	24-37	15-25	5.6-7.3	0	0	0	0
	37-61	15-25	5.6-7.3	0	0	0	0
356:							
Wolot-----	0-21	10-25	6.6-7.3	0	0	0	0
	21-48	10-25	6.6-7.3	0	0	0	0
	48-60	10-25	6.6-7.3	0	0	0	0
357:							
Zumwalt-----	0-7	30-40	6.1-7.3	0	0	0	0
	7-9	30-40	6.1-7.3	0	0	0	0
	9-21	50-60	6.6-7.8	0	0	0	0
	21-37	50-60	7.4-8.4	0-2	0	0.0-2.0	0
	37-47	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
358:							
Zumwalt-----	0-7	30-40	6.1-7.3	0	0	0	0
	7-9	30-40	6.1-7.3	0	0	0	0
	9-21	50-60	6.6-7.8	0	0	0	0
	21-37	50-60	7.4-8.4	0-2	0	0.0-2.0	0
	37-47	---	---	---	---	---	---



Table 18.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
358:							
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
359:							
Zumwalt-----	0-7	30-40	6.1-7.3	0	0	0	0
	7-9	30-40	6.1-7.3	0	0	0	0
	9-21	50-60	6.6-7.8	0	0	0	0
	21-37	50-60	7.4-8.4	0-2	0	0.0-2.0	0
	37-47	---	---	---	---	---	---
Harlow-----	0-4	25-40	6.6-7.3	0	0	0	0
	4-8	25-35	6.6-7.3	0	0	0	0
	8-16	35-45	6.6-7.3	0	0	0	0
	16-26	---	---	---	---	---	---

Table 19.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
1: Akerite-----	B	March	2.5-3.5	>6.0	---	---	None	---	None
		April	2.5-3.5	>6.0	---	---	None	---	None
		May	2.5-3.5	>6.0	---	---	None	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
2: Akerite-----	B	March	2.5-3.5	>6.0	---	---	None	---	None
		April	2.5-3.5	>6.0	---	---	None	---	None
		May	2.5-3.5	>6.0	---	---	None	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
3: Albee-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
4: Albee-----	C	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
5: Analulu-----	B	Jan-Dec	---	---	---	---	None	---	None
Slicklog-----	B	Jan-Dec	---	---	---	---	None	---	None
Bluecanyon-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
6: Analulu-----	B	Jan-Dec	---	---	---	---	None	---	None
Slicklog-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
7: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
8: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
9: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
10: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Fivebit-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
11: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Fivebit-----	D	Jan-Dec	---	---	---	---	None	---	None
12: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
13: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
14: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Kamela-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
15: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
16: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
17: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
18: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Clearline-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
19: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Fivebit-----	D	Jan-Dec	---	---	---	---	None	---	None
20: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
21: Balm-----	D	January	1.0-2.0	>6.0	---	---	None	---	Rare
		February	1.0-2.0	>6.0	---	---	None	---	Rare
		March	1.0-2.0	>6.0	---	---	None	---	Rare
		April	1.0-2.0	>6.0	---	---	None	---	Rare
		May	1.0-2.0	>6.0	---	---	None	---	Rare
		June	1.0-2.0	>6.0	---	---	None	---	None
		December	1.0-2.0	>6.0	---	---	None	---	Rare
Catherine-----	C	January	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		May	1.5-2.0	>6.0	---	---	None	Brief	Occasional
		June	1.5-2.0	>6.0	---	---	None	---	None
		December	1.5-2.0	>6.0	---	---	None	Brief	Occasional

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
22: Bittercreek-----	D	February	0.5-1.5	>6.0	---	---	None	---	Rare
		March	0.5-1.5	>6.0	---	---	None	---	Rare
		April	0.5-1.5	>6.0	---	---	None	---	Rare
		May	0.5-1.5	>6.0	---	---	None	---	None
		June	0.5-1.5	>6.0	---	---	None	---	None
		July	0.5-1.5	>6.0	---	---	None	---	None
Mippon-----	C	February	3.0-5.0	>6.0	---	---	None	---	Rare
		March	3.0-5.0	>6.0	---	---	None	---	Rare
		April	3.0-5.0	>6.0	---	---	None	---	Rare
23: Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
24: Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
25: Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
26: Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Clearline-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
27: Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Immaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
28: Bridgewater-----	B	January February March April May	---	---	---	---	None None None None None	Brief Brief Brief Brief Brief	Occasional Occasional Occasional Occasional Occasional
29: Btree-----	C	Jan-Dec	---	---	---	---	None	---	None
Flycreek-----	C	Jan-Dec	---	---	---	---	None	---	None
30: Btree-----	C	Jan-Dec	---	---	---	---	None	---	None
Flycreek-----	C	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
31: Btree-----	C	Jan-Dec	---	---	---	---	None	---	None
Flycreek-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
32: Btree-----	C	Jan-Dec	---	---	---	---	None	---	None
Flycreek-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
33: Btree-----	C	Jan-Dec	---	---	---	---	None	---	None
Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
34: Bucketlake-----	B	Jan-Dec	---	---	---	---	None	---	None
35: Bucketlake-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
36: Buford-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
37: Buford-----	B	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
38: Bunchpoint-----	C	Jan-Dec	---	---	---	---	None	---	None
39: Bunchpoint-----	C	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
40: Chard-----	B	Jan-Dec	---	---	---	---	None	---	None
41: Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
42: Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
42: Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Imnaha, moist-----	C	Jan-Dec	---	---	---	---	None	---	None
43: Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
44: Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Limberjim-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
45: Chesnimnus-----	B	Jan-Dec	---	---	---	---	None	---	None
46: Chesnimnus-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
47: Cheval-----	C	January	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		February	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		March	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		April	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		May	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		June	1.5-2.5	>6.0	---	---	None	Brief	Occasional
48: Cloverland-----	C	February	1.5-3.0	1.8-3.0	---	---	None	---	None
		March	1.5-3.0	1.8-3.0	---	---	None	---	None
		April	1.5-3.0	1.8-3.0	---	---	None	---	None
		May	1.5-3.0	1.8-3.0	---	---	None	---	None
49: Cloverland-----	C	February	1.5-3.0	1.8-3.0	---	---	None	---	None
		March	1.5-3.0	1.8-3.0	---	---	None	---	None
		April	1.5-3.0	1.8-3.0	---	---	None	---	None
		May	1.5-3.0	1.8-3.0	---	---	None	---	None
50: Conley-----	C	January	1.5-2.5	1.7-3.3	---	---	None	---	None
		February	1.5-2.5	1.7-3.3	---	---	None	---	None
		March	1.5-2.5	1.7-3.3	---	---	None	---	None
		April	1.5-2.5	1.7-3.3	---	---	None	---	None
		December	1.5-2.5	1.7-3.3	---	---	None	---	None
51: Conley-----	C	January	1.5-2.5	1.7-3.3	---	---	None	---	None
		February	1.5-2.5	1.7-3.3	---	---	None	---	None
		March	1.5-2.5	1.7-3.3	---	---	None	---	None
		April	1.5-2.5	1.7-3.3	---	---	None	---	None
		December	1.5-2.5	1.7-3.3	---	---	None	---	None
52: Copperfield-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
52: Thiessen-----	C	Jan-Dec	---	---	---	---	None	---	None
53: Copperfield-----	B	Jan-Dec	---	---	---	---	None	---	None
Thiessen-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
54: Cowsly-----	C	March	1.5-2.5	1.5-2.5	---	---	None	---	None
		April	1.5-2.5	1.5-2.5	---	---	None	---	None
		May	1.5-2.5	1.5-2.5	---	---	None	---	None
55: Cowsly-----	C	March	1.5-2.5	1.5-2.5	---	---	None	---	None
		April	1.5-2.5	1.5-2.5	---	---	None	---	None
		May	1.5-2.5	1.5-2.5	---	---	None	---	None
56: Cowsly-----	C	March	1.5-2.5	1.5-2.5	---	---	None	---	None
		April	1.5-2.5	1.5-2.5	---	---	None	---	None
		May	1.5-2.5	1.5-2.5	---	---	None	---	None
57: Cowsly, cobbly-----	C	March	1.5-2.5	1.5-2.5	---	---	None	---	None
		April	1.5-2.5	1.5-2.5	---	---	None	---	None
		May	1.5-2.5	1.5-2.5	---	---	None	---	None
Cowsly-----	C	March	1.5-2.5	1.5-2.5	---	---	None	---	None
		April	1.5-2.5	1.5-2.5	---	---	None	---	None
		May	1.5-2.5	1.5-2.5	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
58: Cowsly, cobbly-----	C	March	1.5-2.5	1.5-2.5	---	---	None	---	None
		April	1.5-2.5	1.5-2.5	---	---	None	---	None
		May	1.5-2.5	1.5-2.5	---	---	None	---	None
Cowsly-----	C	March	1.5-2.5	1.5-2.5	---	---	None	---	None
		April	1.5-2.5	1.5-2.5	---	---	None	---	None
		May	1.5-2.5	1.5-2.5	---	---	None	---	None
59: Cowsly-----	C	March	1.5-2.5	0.5-1.6	---	---	None	---	None
		April	1.5-2.5	0.5-1.6	---	---	None	---	None
		May	1.5-2.5	0.5-1.6	---	---	None	---	None
Howmeadows-----	D	March	0.5-1.0	1.0-1.6	---	---	None	---	None
		April	0.5-1.0	1.0-1.6	---	---	None	---	None
		May	0.5-1.0	1.0-1.6	---	---	None	---	None
		June	0.5-1.0	1.0-1.6	---	---	None	---	None
Sherod-----	C	March	1.0-1.5	1.0-1.6	---	---	None	---	None
		April	1.0-1.5	1.0-1.6	---	---	None	---	None
		May	1.0-1.5	1.0-1.6	---	---	None	---	None
		June	1.0-1.5	1.0-1.6	---	---	None	---	None
60: Demasters-----	B	Jan-Dec	---	---	---	---	None	---	None
Snell-----		Jan-Dec	---	---	---	---	None	---	None
61: Dixiejett-----	B	Jan-Dec	---	---	---	---	None	---	None
Licksillet-----		Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
61: Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
62: Doublecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Flybow-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
63: Doublecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Langrell-----	B	Jan-Dec	---	---	---	---	None	---	None
64: Doublecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Phys-----	B	Jan-Dec	---	---	---	---	None	---	None
65: Downards-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
66: Downards-----	B	Jan-Dec	---	---	---	---	None	---	None
Emily-----	B	Jan-Dec	---	---	---	---	None	---	None
Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
67: Downards-----	B	Jan-Dec	---	---	---	---	None	---	None
Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
68: Downards-----	B	Jan-Dec	---	---	---	---	None	---	None
Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
69: Downeygulch-----	C	Jan-Dec	---	---	---	---	None	---	None
Lowerbluff-----	D	Jan-Dec	---	---	---	---	None	---	None
70: Downeygulch-----	C	Jan-Dec	---	---	---	---	None	---	None
Thirstygulch-----	D	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
71: Eggleson-----	B	March	2.0-3.0	>6.0	---	---	None	---	Rare
		April	2.0-3.0	>6.0	---	---	None	---	Rare
		May	2.0-3.0	>6.0	---	---	None	---	Rare
		June	2.0-3.0	>6.0	---	---	None	---	Rare
72: Emily-----	B	Jan-Dec	---	---	---	---	None	---	None
Wolot-----	B	Jan-Dec	---	---	---	---	None	---	None
73: Endoaquolls, mesic-----	D	March	0.5-1.5	>6.0	---	---	None	---	None
		April	0.5-1.5	>6.0	---	---	None	---	None
		May	0.5-1.5	>6.0	---	---	None	---	None
		June	0.5-1.5	>6.0	---	---	None	---	None
		July	0.5-1.5	>6.0	---	---	None	---	None
		August	0.5-1.5	>6.0	---	---	None	---	None
74: Ferguson-----	B	Jan-Dec	---	---	---	---	None	---	None
75: Ferguson-----	B	Jan-Dec	---	---	---	---	None	---	None
76: Ferguson-----	B	Jan-Dec	---	---	---	---	None	---	None
77: Ferguson-----	B	Jan-Dec	---	---	---	---	None	---	None
78: Ferguson-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
79: Flybow-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
80: Flybow-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
81: Flycreek-----	C	Jan-Dec	---	---	---	---	None	---	None
Flyvalley-----	C	Jan-Dec	---	---	---	---	None	---	None
82: Freels-----	B	March	3.0-5.0	>6.0	---	---	None	---	Rare
		April	3.0-5.0	>6.0	---	---	None	---	Rare
		May	3.0-5.0	>6.0	---	---	None	---	Rare
		June	3.0-5.0	>6.0	---	---	None	---	Rare
83: Geisercreek-----	B	Jan-Dec	---	---	---	---	None	---	None
84: Gelsinger-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
85: Gelsinger-----	C	Jan-Dec	---	---	---	---	None	---	None
86: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
87: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
88: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
89: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
90: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
91: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
91: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
92: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
93: Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
94: Gwin-----	D	Jan-Dec	---	---	---	---	None	---	None
Kettenbach-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
95: Gwin-----	D	Jan-Dec	---	---	---	---	None	---	None
Kettenbach-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
95: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
96: Gwin-----	D	Jan-Dec	---	---	---	---	None	---	None
Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None
Kettenbach-----	C	Jan-Dec	---	---	---	---	None	---	None
97: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Kettenbach-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
98: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
99: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
100: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
Kettenbach-----	C	Jan-Dec	---	---	---	---	None	---	None
101: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
Kettenbach-----	C	Jan-Dec	---	---	---	---	None	---	None
102: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
Kettenbach-----	C	Jan-Dec	---	---	---	---	None	---	None
103: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
104: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
105: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
106: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
107: Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
108: Hapludolls, frigid-----	B	April	2.0-3.0	>6.0	---	---	None	---	Rare
		May	2.0-3.0	>6.0	---	---	None	---	Rare
		June	2.0-3.0	>6.0	---	---	None	---	Rare

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
108: Endoaquolls, frigid-----	D	April	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		July	0.5-1.0	>6.0	---	---	None	---	None
		August	0.5-1.0	>6.0	---	---	None	---	None
Endoaquents, frigid-----	D	April	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		July	0.5-1.0	>6.0	---	---	None	---	None
		August	0.5-1.0	>6.0	---	---	None	---	None
109: Harl-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
110: Harl-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
111: Harl-----	B	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
112: Harl-----	B	Jan-Dec	---	---	---	---	None	---	None
Limberjim-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
113: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
114: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
115: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
116: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
117: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
118: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
119: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
120: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
121: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
122: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
123: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
124: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
125: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Snell-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
125: Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
126: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
127: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
128: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
129: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Threebuck-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
130: Hershal-----	D	March	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		April	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.5	>6.0	---	---	None	Brief	Occasional
131: Hershal-----	D	March	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		April	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.5	>6.0	---	---	None	Brief	Occasional
Voats-----	B	January	3.5-6.0	>6.0	---	---	None	---	None
		February	3.5-6.0	>6.0	---	---	None	---	None
		March	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-6.0	>6.0	---	---	None	Brief	Occasional
132: Hershal-----	D	March	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		April	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.5	>6.0	---	---	None	Brief	Occasional
Voats-----	B	January	3.5-6.0	>6.0	---	---	None	---	None
		February	3.5-6.0	>6.0	---	---	None	---	None
		March	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-6.0	>6.0	---	---	None	Brief	Occasional
Veazie-----	B	January	3.5-6.0	>6.0	---	---	None	---	None
		February	3.5-6.0	>6.0	---	---	None	---	None
		March	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-6.0	>6.0	---	---	None	Brief	Occasional

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
133: Howmeadows-----	D	March	0.5-1.0	1.0-1.6	---	---	None	---	None
		April	0.5-1.0	1.0-1.6	---	---	None	---	None
		May	0.5-1.0	1.0-1.6	---	---	None	---	None
		June	0.5-1.0	1.0-1.6	---	---	None	---	None
Wilkins-----	D	February	1.0-1.5	0.9-2.9	---	---	None	---	None
		March	1.0-1.5	0.9-2.9	---	---	None	---	None
		April	1.0-1.5	0.9-2.9	---	---	None	---	None
		May	1.0-1.5	0.9-2.9	---	---	None	---	None
		June	1.0-1.5	0.9-2.9	---	---	None	---	None
134: Hurwal-----	B	Jan-Dec	---	---	---	---	None	---	None
135: Hurwal-----	B	Jan-Dec	---	---	---	---	None	---	None
136: Hurwal, deep-----	B	Jan-Dec	---	---	---	---	None	---	None
137: Hurwal, deep-----	B	Jan-Dec	---	---	---	---	None	---	None
138: Hurwal-----	B	Jan-Dec	---	---	---	---	None	---	None
139: Hurwal-----	B	Jan-Dec	---	---	---	---	None	---	None
140: Hurwal-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
141: Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
142: Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Imhaha, moist-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
143: Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
Clearline-----	B	Jan-Dec	---	---	---	---	None	---	None
144: Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
145: Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
145: Clearline-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
146: Immaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None
147: Josset-----	C	January	2.5-3.5	>6.0	---	---	None	Brief	Occasional
		February	2.5-3.5	>6.0	---	---	None	Brief	Occasional
		March	2.5-3.5	>6.0	---	---	None	Brief	Occasional
		April	2.5-3.5	>6.0	---	---	None	Brief	Occasional
		May	2.5-3.5	>6.0	---	---	None	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
148: Kahler-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
149: Kahler-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
149: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
150: Kahler-----	B	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
151: Kahler-----	B	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
152: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
153: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
154: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
155: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
156: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
157: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
158: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
159: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
160: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Fivebit-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
161: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
161: Fivebit-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
162: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
163: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Kamela-----	C	Jan-Dec	---	---	---	---	None	---	None
Fivebit-----	D	Jan-Dec	---	---	---	---	None	---	None
164: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
165: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Thirstygulch-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
166: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Thirstygulch-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
167: Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
168: Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
169: Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
170: Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None
Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
171: Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None
Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
Volstead-----	B	Jan-Dec	---	---	---	---	None	---	None
172: Langrell-----	B	Jan-Dec	---	---	---	---	None	---	None
173: Langrell-----	B	Jan-Dec	---	---	---	---	None	---	None
Snow-----	B	Jan-Dec	---	---	---	---	None	---	None
174: Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
175: Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None
Volstead-----	B	Jan-Dec	---	---	---	---	None	---	None
176: Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
Klickson-----	B	Jan-Dec	---	---	---	---	None	---	None
Volstead-----	B	Jan-Dec	---	---	---	---	None	---	None
177: Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
Melhorn-----	B	Jan-Dec	---	---	---	---	None	---	None
178: Larabee-----	C	Jan-Dec	---	---	---	---	None	---	None
Volstead-----	B	Jan-Dec	---	---	---	---	None	---	None
179: Laufer-----	D	Jan-Dec	---	---	---	---	None	---	None
Thiessen-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
180: Laufer-----	D	Jan-Dec	---	---	---	---	None	---	None
Thiessen-----	C	Jan-Dec	---	---	---	---	None	---	None
181: Laufer-----	D	Jan-Dec	---	---	---	---	None	---	None
Thiessen-----	C	Jan-Dec	---	---	---	---	None	---	None
182: Laufer-----	D	Jan-Dec	---	---	---	---	None	---	None
Thiessen-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
183: Lawyer, stony-----	B	Jan-Dec	---	---	---	---	None	---	None
Lawyer-----	B	Jan-Dec	---	---	---	---	None	---	None
Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
184: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	---	None
Dixiejett-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
184: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
185: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	---	None
Doublecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
186: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	---	None
Doublecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
187: Limberjim-----	B	Jan-Dec	---	---	---	---	None	---	None
188: Limberjim-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
189: Limberjim-----	B	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
189: Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
190: Limberjim-----	B	Jan-Dec	---	---	---	---	None	---	None
Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
191: Limberjim-----	B	Jan-Dec	---	---	---	---	None	---	None
Tamara-----	B	Jan-Dec	---	---	---	---	None	---	None
192: Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
193: Lookingglass-----	C	March April	1.5-3.0 1.5-3.0	1.2-2.5 1.2-2.5	--- ---	--- ---	None None	--- ---	None None
194: Lookingglass-----	C	March April	1.5-3.0 1.5-3.0	1.2-2.5 1.2-2.5	--- ---	--- ---	None None	--- ---	None None
195: Lookingglass, stony-----	C	March April	1.5-3.0 1.5-3.0	1.2-2.5 1.2-2.5	--- ---	--- ---	None None	--- ---	None None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
196: Lookingglass, cobbly-----	C	March April	1.5-3.0 1.5-3.0	1.2-2.5 1.2-2.5	--- ---	--- ---	None None	--- ---	None None
Lookingglass-----	C	March April	1.5-3.0 1.5-3.0	1.2-2.5 1.2-2.5	--- ---	--- ---	None None	--- ---	None None
197: Lookingglass-----	C	March April	1.5-3.0 1.5-3.0	1.2-2.5 1.2-2.5	--- ---	--- ---	None None	--- ---	None None
Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
198: Lookingglass-----	C	March April	1.5-3.0 1.5-3.0	1.2-2.5 1.2-2.5	--- ---	--- ---	None None	--- ---	None None
Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
199: Lostine-----	B	Jan-Dec	---	---	---	---	None	---	None
200: Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Lawyer-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
201: Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
Lawyer-----	B	Jan-Dec	---	---	---	---	None	---	None
202: Mallory-----	C	Jan-Dec	---	---	---	---	None	---	None
Lawyer-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
203: Matheny-----	B	Jan-Dec	---	---	---	---	None	---	None
Linville-----	B	Jan-Dec	---	---	---	---	None	---	None
Laufer-----	D	Jan-Dec	---	---	---	---	None	---	None
204: Matterhorn-----	A	Jan-Dec	---	---	---	---	None	---	None
205: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
206: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None
207: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None
208: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None
209: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None
210: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None
211: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None
212: Minam-----	B	Jan-Dec	---	---	---	---	None	---	None
Minam, gravelly-----	B	Jan-Dec	---	---	---	---	None	---	None
Endoaquepts-----	D	March	0.0-1.0	>6.0	---	---	None	---	None
		April	0.0-1.0	>6.0	---	---	None	---	None
		May	0.0-1.0	>6.0	---	---	None	---	None
		June	0.0-1.0	>6.0	---	---	None	---	None
		July	0.0-1.0	>6.0	---	---	None	---	None
		August	0.0-1.0	>6.0	---	---	None	---	None
213: Minam, gravelly-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
213: Minam, stony-----	B	Jan-Dec	---	---	---	---	None	---	None
Endoaquepts-----	D	March	0.0-1.0	>6.0	---	---	None	---	None
		April	0.0-1.0	>6.0	---	---	None	---	None
		May	0.0-1.0	>6.0	---	---	None	---	None
		June	0.0-1.0	>6.0	---	---	None	---	None
		July	0.0-1.0	>6.0	---	---	None	---	None
		August	0.0-1.0	>6.0	---	---	None	---	None
214: Mippon-----	C	February	3.0-5.0	>6.0	---	---	None	---	Rare
		March	3.0-5.0	>6.0	---	---	None	---	Rare
		April	3.0-5.0	>6.0	---	---	None	---	Rare
215: Mountemily-----	B	Jan-Dec	---	---	---	---	None	---	None
Troutmeadows-----	B	Jan-Dec	---	---	---	---	None	---	None
216: Mountemily-----	B	Jan-Dec	---	---	---	---	None	---	None
Troutmeadows-----	B	Jan-Dec	---	---	---	---	None	---	None
217: Mountemily-----	B	Jan-Dec	---	---	---	---	None	---	None
Troutmeadows-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
218: Mountemily-----	B	Jan-Dec	---	---	---	---	None	---	None
Troutmeadows-----	B	Jan-Dec	---	---	---	---	None	---	None
Anatone, cold-----	D	Jan-Dec	---	---	---	---	None	---	None
219: Needhill-----	B	Jan-Dec	---	---	---	---	None	---	None
Parsnip-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
220: Needhill-----	B	Jan-Dec	---	---	---	---	None	---	None
Zumwalt-----	C	Jan-Dec	---	---	---	---	None	---	None
221: Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
222: Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
223: Olot-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
223: Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
224: Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
225: Parsnip-----	D	Jan-Dec	---	---	---	---	None	---	None
226: Parsnip-----	D	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
227: Phys-----	B	Jan-Dec	---	---	---	---	None	---	None
228: Phys-----	B	Jan-Dec	---	---	---	---	None	---	None
Doublecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Collegecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
229: Phys-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
229: Doublecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
Collegecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
230: Powwatka-----	C	Jan-Dec	---	---	---	---	None	---	None
231: Powwatka-----	C	Jan-Dec	---	---	---	---	None	---	None
232: Powwatka-----	C	Jan-Dec	---	---	---	---	None	---	None
233: Powwatka-----	C	Jan-Dec	---	---	---	---	None	---	None
234: Puzzlecreek-----	B	Jan-Dec	---	---	---	---	None	---	None
235: Ramo-----	C	Jan-Dec	---	---	---	---	None	---	None
236: Ramo-----	C	Jan-Dec	---	---	---	---	None	---	None
237: Ramo-----	C	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
238: Ramo-----	C	Jan-Dec	---	---	---	---	None	---	None
Conley-----	C	January	1.5-2.5	1.7-3.3	---	---	None	---	None
		February	1.5-2.5	1.7-3.3	---	---	None	---	None
		March	1.5-2.5	1.7-3.3	---	---	None	---	None
		April	1.5-2.5	1.7-3.3	---	---	None	---	None
		December	1.5-2.5	1.7-3.3	---	---	None	---	None
239: Reavis-----	B	Jan-Dec	---	---	---	---	None	---	None
240: Redmount-----	B	Jan-Dec	---	---	---	---	None	---	None
241: Redmount-----	B	Jan-Dec	---	---	---	---	None	---	None
242: Redmount-----	B	Jan-Dec	---	---	---	---	None	---	None
243: Redmount-----	B	Jan-Dec	---	---	---	---	None	---	None
Cheval-----	C	January	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		February	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		March	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		April	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		May	1.5-2.5	>6.0	---	---	None	Brief	Occasional
		June	1.5-2.5	>6.0	---	---	None	Brief	Occasional

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
244: Riverwash-----	D	January	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		February	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		March	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		April	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		May	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		June	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		July	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		August	0.0-1.5	>6.0	---	---	None	---	None
		September	0.0-1.5	>6.0	---	---	None	---	None
		October	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		November	0.0-1.5	>6.0	---	---	None	Very long	Frequent
		December	0.0-1.5	>6.0	---	---	None	Very long	Frequent
245: Rock outcrop, limestone-----	D	Jan-Dec	---	---	---	---	None	---	None
246: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Fivebit-----	D	Jan-Dec	---	---	---	---	None	---	None
247: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
248: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
Immaha-----	C	Jan-Dec	---	---	---	---	None	---	None
249: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Immaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Cherrycreek-----	B	Jan-Dec	---	---	---	---	None	---	None
250: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
251: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
Dixiejett-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
252: Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Copperfield-----	B	Jan-Dec	---	---	---	---	None	---	None
253: Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Licksillet-----	D	Jan-Dec	---	---	---	---	None	---	None
254: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
255: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
256: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
257: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
258: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
259: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
260: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
261: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
262: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
263: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
264: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
265: Rondowa-----	B	Jan-Dec	---	---	---	---	None	---	None
266: Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
267: Sag-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
268: Sag-----	B	Jan-Dec	---	---	---	---	None	---	None
269: Sag-----	B	Jan-Dec	---	---	---	---	None	---	None
270: Schrier-----	B	Jan-Dec	---	---	---	---	None	---	None
271: Schrier-----	B	Jan-Dec	---	---	---	---	None	---	None
Almota-----	C	Jan-Dec	---	---	---	---	None	---	None
272: Schrier-----	B	Jan-Dec	---	---	---	---	None	---	None
Almota-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
273: Schuelke-----	C	Jan-Dec	---	---	---	---	None	---	None
Schrier-----	B	Jan-Dec	---	---	---	---	None	---	None
Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
274: Silverlake-----	C	Jan-Dec	---	---	---	---	None	---	None
275: Slicklog-----	B	Jan-Dec	---	---	---	---	None	---	None
276: Slicklog-----	B	Jan-Dec	---	---	---	---	None	---	None
Eastpine-----	B	Jan-Dec	---	---	---	---	None	---	None
277: Slicklog-----	B	Jan-Dec	---	---	---	---	None	---	None
Eastpine-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
278: Slicklog-----	B	Jan-Dec	---	---	---	---	None	---	None
Wintercanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
279: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
280: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
281: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
282: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
283: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
284: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
285: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
285: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
286: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
287: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
288: Snell-----	C	Jan-Dec	---	---	---	---	None	---	None
Imnaha-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
289: Snow-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
290: Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
291: Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
292: Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
293: Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
294: Sopher-----	C	Jan-Dec	---	---	---	---	None	---	None
Gwinly-----	D	Jan-Dec	---	---	---	---	None	---	None
295: Sturgill-----	D	March	0.5-1.0	>6.0	---	---	None	---	None
		April	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
296: Sturgill-----	D	March	0.5-1.0	>6.0	---	---	None	---	None
		April	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		July	---	---	---	---	None	Brief	Occasional
Eggleson-----	B	March	2.0-3.0	>6.0	---	---	None	---	Rare
		April	2.0-3.0	>6.0	---	---	None	---	Rare
		May	2.0-3.0	>6.0	---	---	None	---	Rare
		June	2.0-3.0	>6.0	---	---	None	---	Rare
297: Sweitberg-----	C	Jan-Dec	---	---	---	---	None	---	None
298: Sweitberg-----	C	Jan-Dec	---	---	---	---	None	---	None
299: Sweiting-----	C	Jan-Dec	---	---	---	---	None	---	None
300: Sweiting-----	C	Jan-Dec	---	---	---	---	None	---	None
301: Sweiting-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
302: Sweiting-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
302: Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
303: Sweiting-----	C	Jan-Dec	---	---	---	---	None	---	None
Klicker-----	C	Jan-Dec	---	---	---	---	None	---	None
304: Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
305: Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
Anatone-----	D	Jan-Dec	---	---	---	---	None	---	None
306: Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
Lowerbluff-----	D	Jan-Dec	---	---	---	---	None	---	None
307: Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
Tamara-----	B	Jan-Dec	---	---	---	---	None	---	None
308: Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
308: Tamara-----	B	Jan-Dec	---	---	---	---	None	---	None
309: Tamara-----	B	Jan-Dec	---	---	---	---	None	---	None
Sherod-----	C	March	1.0-1.5	1.0-1.6	---	---	None	---	None
		April	1.0-1.5	1.0-1.6	---	---	None	---	None
		May	1.0-1.5	1.0-1.6	---	---	None	---	None
		June	1.0-1.5	1.0-1.6	---	---	None	---	None
310: Tamara-----	B	Jan-Dec	---	---	---	---	None	---	None
Syrupcreek-----	C	Jan-Dec	---	---	---	---	None	---	None
311: Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
312: Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Lowerbluff-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
313: Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
314: Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
315: Tannahill-----	B	Jan-Dec	---	---	---	---	None	---	None
Schrier-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
316: Tannahill-----	B	Jan-Dec	---	---	---	---	None	---	None
Schuelke-----	C	Jan-Dec	---	---	---	---	None	---	None
Licksillet-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
317: Thiessen-----	C	Jan-Dec	---	---	---	---	None	---	None
318: Threebuck-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
319: Threebuck-----	C	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
320: Threebuck-----	C	Jan-Dec	---	---	---	---	None	---	None
Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
321: Threebuck-----	C	Jan-Dec	---	---	---	---	None	---	None
Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
322: Threebuck-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
322: Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
323: Threebuck-----	C	Jan-Dec	---	---	---	---	None	---	None
Tamarackcanyon-----	C	Jan-Dec	---	---	---	---	None	---	None
Linecreek-----	A	Jan-Dec	---	---	---	---	None	---	None
324: Tippett-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
325: Tippett-----	C	Jan-Dec	---	---	---	---	None	---	None
Zumwalt-----	C	Jan-Dec	---	---	---	---	None	---	None
326: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None
327: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None



Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
328: Tolo, fan-----	B	Jan-Dec	---	---	---	---	None	---	None
329: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
330: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
331: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
332: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None
Getaway-----	B	Jan-Dec	---	---	---	---	None	---	None
333: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None
Olot-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
334: Tolo-----	B	Jan-Dec	---	---	---	---	None	---	None
Olot-----	C	Jan-Dec	---	---	---	---	None	---	None
335: Topper-----	B	Jan-Dec	---	---	---	---	None	---	None
336: Topper-----	B	Jan-Dec	---	---	---	---	None	---	None
337: Topper-----	B	Jan-Dec	---	---	---	---	None	---	None
338: Topper-----	B	Jan-Dec	---	---	---	---	None	---	None
339: Troutmeadows-----	B	Jan-Dec	---	---	---	---	None	---	None
Crawfish-----	D	Jan-Dec	---	---	---	---	None	---	None
340: Tuckerdowns-----	B	Jan-Dec	---	---	---	---	None	---	None
341: Tuckerdowns-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
342: Tuckerdowns-----	B	Jan-Dec	---	---	---	---	None	---	None
343: Vandamine-----	B	Jan-Dec	---	---	---	---	None	---	None
Bordengulch-----	B	Jan-Dec	---	---	---	---	None	---	None
344: Vandamine-----	B	Jan-Dec	---	---	---	---	None	---	None
Bordengulch-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
345: Veazie-----	B	January	3.5-6.0	>6.0	---	---	None	---	None
		February	3.5-6.0	>6.0	---	---	None	---	None
		March	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-6.0	>6.0	---	---	None	Brief	Occasional
346: Voats-----	B	January	3.5-6.0	>6.0	---	---	None	---	None
		February	3.5-6.0	>6.0	---	---	None	---	None
		March	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-6.0	>6.0	---	---	None	Brief	Occasional

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
346: Veazie-----	B	January	3.5-6.0	>6.0	---	---	None	---	None
		February	3.5-6.0	>6.0	---	---	None	---	None
		March	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-6.0	>6.0	---	---	None	Brief	Occasional
347: Volstead-----	B	Jan-Dec	---	---	---	---	None	---	None
Quirk-----	C	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
348: Volstead-----	B	Jan-Dec	---	---	---	---	None	---	None
Quirk-----	C	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
349: Wallowa-----	C	Jan-Dec	---	---	---	---	None	---	None
Bocker-----	D	Jan-Dec	---	---	---	---	None	---	None
350: Watama-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
351: Watama-----	C	Jan-Dec	---	---	---	---	None	---	None
352: Watama-----	C	Jan-Dec	---	---	---	---	None	---	None
Rockly-----	D	Jan-Dec	---	---	---	---	None	---	None
353: Water-----	---	Jan-Dec	---	---	---	---	None	---	None
354: Wilkins-----	D	February	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		March	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		April	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		May	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		June	1.0-1.5	0.9-2.9	---	---	None	---	None
355: Wilkins-----	D	February	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		March	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		April	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		May	1.0-1.5	0.9-2.9	---	---	None	Brief	Occasional
		June	1.0-1.5	0.9-2.9	---	---	None	---	None
Feaginranch-----	D	February	0.0	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		March	0.0	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		April	0.0	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		May	0.0	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		June	0.0	>6.0	---	---	None	---	None
		July	0.0	>6.0	---	---	None	---	None
356: Wolot-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
357: Zumwalt-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
358: Zumwalt-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None
359: Zumwalt-----	C	Jan-Dec	---	---	---	---	None	---	None
Harlow-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 20.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
1: Akerite-----	---	---	---	---	Moderate	Moderate	Moderate
2: Akerite-----	---	---	---	---	Moderate	Moderate	Moderate
3: Albee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
4: Albee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
5: Analulu-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Slicklog-----	---	---	---	---	Moderate	Moderate	Low
Bluecanyon-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
6: Analulu-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Slicklog-----	---	---	---	---	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
7: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
8: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
9: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
10: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Fivebit-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
11: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Fivebit-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
12: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
13: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
14: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Kamela-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
15: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
16: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
17: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Olot-----	Strongly contrasting textural stratification	14-20	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	20-40	---	Indurated			
18: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Clearline-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
19: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Fivebit-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
20: Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
21: Balm-----	Strongly contrasting textural stratification	20-35	---	Noncemented	Moderate	High	Low
Catherine-----	Strongly contrasting textural stratification	40-60	---	Noncemented	High	Moderate	Low



Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
22: Bittercreek-----	Strongly contrasting textural stratification	15-30	---	Noncemented	High	Moderate	Low
Mippon-----	Strongly contrasting textural stratification	10-20	---	Noncemented	Low	Moderate	Low
23: Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
24: Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
25: Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
26: Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Clearline-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
27: Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
28: Bridgewater-----	Strongly contrasting textural stratification	20-40	---	Noncemented	Moderate	Moderate	Low
29: Btree-----	Abrupt textural change	14-25	---	Noncemented	High	Moderate	Moderate
	Bedrock (paralithic)	40-60	---	Moderately cemented			
Flycreek-----	Abrupt textural change	14-22	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
30: Btree-----	Abrupt textural change	14-25	---	Noncemented	High	Moderate	Moderate
	Bedrock (paralithic)	40-60	---	Moderately cemented			
Flycreek-----	Abrupt textural change	14-22	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
31: Btree-----	Abrupt textural change	14-25	---	Noncemented	High	Moderate	Moderate
	Bedrock (paralithic)	40-60	---	Moderately cemented			
Flycreek-----	Abrupt textural change	14-22	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
32: Btree-----	Abrupt textural change	14-25	---	Noncemented	High	Moderate	Moderate
	Bedrock (paralithic)	40-60	---	Moderately cemented			
Flycreek-----	Abrupt textural change	14-22	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
33: Btree-----	Abrupt textural change	14-25	---	Noncemented	High	Moderate	Moderate
	Bedrock (paralithic)	40-60	---	Moderately cemented			
Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
34: Bucketlake-----	Strongly contrasting textural stratification	14-20	---	Noncemented	High	Moderate	Low
35: Bucketlake-----	Strongly contrasting textural stratification	14-20	---	Noncemented	High	Moderate	Low
36: Buford-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
37: Buford-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
38: Bunchpoint-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
39: Bunchpoint-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
40: Chard-----	---	---	---	---	Moderate	High	Low
41: Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Immaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
42: Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Imnaha, moist-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
43: Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
44: Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Limberjim-----	Strongly contrasting textural stratification	14-28	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
45: Chesnimnus-----	---	---	---	---	Moderate	High	Low
46: Chesnimnus-----	---	---	---	---	Moderate	High	Low
47: Cheval-----	Strongly contrasting textural stratification	20-36	---	Noncemented	Moderate	High	Low
48: Cloverland-----	---	---	---	---	High	Moderate	Moderate
49: Cloverland-----	---	---	---	---	High	Moderate	Moderate
50: Conley-----	Abrupt textural change	15-30	---	Noncemented	Moderate	Moderate	Low
51: Conley-----	Abrupt textural change	15-30	---	Noncemented	Moderate	Moderate	Low
52: Copperfield-----	---	---	---	---	Moderate	Moderate	Low
Thiessen-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
53: Copperfield-----	---	---	---	---	Moderate	Moderate	Low
Thiessen-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
54: Cowsly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
55: Cowsly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
56: Cowsly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
57: Cowsly, cobbly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
Cowsly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
58: Cowsly, cobbly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
Cowsly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
59: Cowsly-----	Abrupt textural change	17-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
Howmeadows-----	Bedrock (lithic)	20-40	---	Indurated	High	Moderate	Low
Sherod-----	Bedrock (lithic)	10-20	---	Indurated	High	Moderate	Low
60: Demasters-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
61: Dixiejett-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
Licksillet-----	Bedrock (lithic)	12-20	---	Indurated	Moderate	High	Low
Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
62: Doublecreek-----	---	---	---	---	Low	Moderate	Low
Flybow-----	Bedrock (lithic)	4-10	---	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
63: Doublecreek-----	---	---	---	---	Low	Moderate	Low
Langrell-----	---	---	---	---	Moderate	Moderate	Low
64: Doublecreek-----	---	---	---	---	Low	Moderate	Low
Phys-----	---	---	---	---	Moderate	Moderate	Low
65: Downards-----	---	---	---	---	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
65: Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
66: Downards-----	---	---	---	---	Moderate	Moderate	Low
Emily-----	---	---	---	---	Moderate	Low	Low
Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
67: Downards-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
68: Downards-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
69: Downeygulch-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Lowerbluff-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Moderate
70: Downeygulch-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Thirstygulch-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Moderate
71: Eggleson-----	---	---	---	---	Moderate	Moderate	Low
72: Emily-----	---	---	---	---	Moderate	Low	Low
Wolot-----	---	---	---	---	Moderate	Moderate	Low
73: Endoaquolls, mesic----	---	---	---	---	Moderate	Moderate	Low
74: Ferguson-----	Strongly contrasting textural stratification	40-60	---	Noncemented	Moderate	Low	Low
75: Ferguson-----	Strongly contrasting textural stratification	40-60	---	Noncemented	Moderate	Low	Low
76: Ferguson-----	Strongly contrasting textural stratification	40-60	---	Noncemented	Moderate	Low	Low
77: Ferguson-----	Strongly contrasting textural stratification	40-60	---	Noncemented	Moderate	Low	Low
78: Ferguson-----	Strongly contrasting textural stratification	40-60	---	Noncemented	Moderate	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
79: Flybow-----	Bedrock (lithic)	4-10	---	Indurated	Low	Moderate	Low
Rubble land-----	---	---	---	---	---	---	---
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
80: Flybow-----	Bedrock (lithic)	4-10	---	Indurated	Low	Moderate	Low
Rubble land-----	---	---	---	---	---	---	---
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
81: Flycreek-----	Abrupt textural change	14-22	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
Flyvalley-----	Bedrock (lithic)	10-20	---	Indurated	High	Moderate	Moderate
82: Freels-----	---	---	---	---	Moderate	Moderate	Low
83: Geisercreek-----	Abrupt textural change	20-35	---	Noncemented	High	Moderate	Moderate
84: Gelsinger-----	---	---	---	---	Low	High	Low
85: Gelsinger-----	---	---	---	---	Low	High	Low
86: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
87: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
88: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
89: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
90: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
91: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
92: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
93: Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
94: Gwin-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Kettenbach-----	Bedrock (lithic)	20-40	---	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
95: Gwin-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Kettenbach-----	Bedrock (lithic)	20-40	---	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
96: Gwin-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Klickson-----	---	---	---	---	Moderate	Moderate	Low
Kettenbach-----	Bedrock (lithic)	20-40	---	Indurated	Low	Moderate	Low
97: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Kettenbach-----	Bedrock (lithic)	20-40	---	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
98: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
99: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
100: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Kettenbach-----	Bedrock (lithic)	20-40	---	Indurated	Low	Moderate	Low
101: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Kettenbach-----	Bedrock (lithic)	20-40	---	Indurated	Low	Moderate	Low
102: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Kettenbach-----	Bedrock (lithic)	20-40	---	Indurated	Low	Moderate	Low
103: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
104: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
105: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
106: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
107: Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
108: Hapludolls, frigid----	---	---	---	---	Moderate	Moderate	Low
Endoaquolls, frigid----	---	---	---	---	High	Moderate	Low
Endoaquents, frigid----	---	---	---	---	Moderate	Moderate	Low
109: Harl-----	---	---	---	---	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
110: Harl-----	---	---	---	---	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
111: Harl-----	---	---	---	---	Moderate	Moderate	Low
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
112: Harl-----	---	---	---	---	Moderate	Moderate	Low
Limberjim-----	Strongly contrasting textural stratification	14-28	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
113: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
114: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low



Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
115: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
116: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
117: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
118: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
119: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
120: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
121: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
122: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
123: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
124: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
125: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
126: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	---	---	---
127: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
128: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Olot-----	Strongly contrasting textural stratification	14-20	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	20-40	---	Indurated			
129: Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Threebuck-----	Abrupt textural change	14-22	---	Noncemented	Moderate	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
130: Hershal-----	Strongly contrasting textural stratification	20-30	---	Noncemented	High	Moderate	Low
131: Hershal-----	Strongly contrasting textural stratification	20-30	---	Noncemented	High	Moderate	Low
Voats-----	Strongly contrasting textural stratification	10-20	---	Noncemented	Low	Moderate	Low
132: Hershal-----	Strongly contrasting textural stratification	20-30	---	Noncemented	High	Moderate	Low
Voats-----	Strongly contrasting textural stratification	10-20	---	Noncemented	Low	Moderate	Low
Veazie-----	Strongly contrasting textural stratification	20-30	---	Noncemented	Moderate	Moderate	Low
133: Howmeadows-----	Bedrock (lithic)	20-40	---	Indurated	High	Moderate	Low
Wilkins-----	Abrupt textural change	15-30	---	Noncemented	High	Moderate	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
134: Hurwal-----	---	---	---	---	Moderate	Moderate	Low
135: Hurwal-----	---	---	---	---	Moderate	Moderate	Low
136: Hurwal, deep-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
137: Hurwal, deep-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
138: Hurwal-----	---	---	---	---	Moderate	Moderate	Low
139: Hurwal-----	---	---	---	---	Moderate	Moderate	Low
140: Hurwal-----	---	---	---	---	Moderate	Moderate	Low
141: Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
142: Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Imhaha, moist-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
143: Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
Clearline-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
144: Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
145: Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Clearline-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
146: Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
147: Josset-----	Strongly contrasting textural stratification	20-36	---	Noncemented	Moderate	High	Low
148: Kahler-----	---	---	---	---	Moderate	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
149: Kahler-----	---	---	---	---	Moderate	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
150: Kahler-----	---	---	---	---	Moderate	Moderate	Moderate
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
151: Kahler-----	---	---	---	---	Moderate	Moderate	Moderate
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
152: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
153: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
154: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
155: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
156: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
157: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
158: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
159: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
160: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Fivebit-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
161: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Fivebit-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
162: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
163: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Kamela-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Fivebit-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
164: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Olot-----	Strongly contrasting textural stratification Bedrock (lithic)	14-20	---	Noncemented	Moderate	Moderate	Low
		20-40	---	Indurated			
165: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Thirstygulch-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
166: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Thirstygulch-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
167: Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
168: Klickson-----	---	---	---	---	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
169: Klickson-----	---	---	---	---	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
170: Klickson-----	---	---	---	---	Moderate	Moderate	Low
Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
171: Klickson-----	---	---	---	---	Moderate	Moderate	Low
Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Volstead-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
172: Langrell-----	---	---	---	---	Moderate	Moderate	Low
173: Langrell-----	---	---	---	---	Moderate	Moderate	Low
Snow-----	---	---	---	---	Low	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
174: Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Klickson-----	---	---	---	---	Moderate	Moderate	Low
175: Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Klickson-----	---	---	---	---	Moderate	Moderate	Low
Volstead-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
176: Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Klickson-----	---	---	---	---	Moderate	Moderate	Low
Volstead-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
177: Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Melhorn-----	---	---	---	---	Moderate	Moderate	Low
178: Larabee-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Volstead-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
179: Laufer-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Thiessen-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
180: Laufer-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Thiessen-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
181: Laufer-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Thiessen-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
182: Laufer-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
Thiessen-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
183: Lawyer, stony-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Lawyer-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
184: Lickskillet-----	Bedrock (lithic)	12-20	---	Indurated	Moderate	High	Low
Dixiejett-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
185: Lickskillet-----	Bedrock (lithic)	12-20	---	Indurated	Moderate	High	Low
Doublecreek-----	---	---	---	---	Low	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
185: Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
186: Lickskillet-----	Bedrock (lithic)	12-20	---	Indurated	Moderate	High	Low
Doublecreek-----	---	---	---	---	Low	Moderate	Low
Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
187: Limberjim-----	Strongly contrasting textural stratification	14-28	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
188: Limberjim-----	Strongly contrasting textural stratification	14-28	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
189: Limberjim-----	Strongly contrasting textural stratification	14-28	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Syrupcreek-----	Strongly contrasting textural stratification	14-24	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
190: Limberjim-----	Strongly contrasting textural stratification	14-28	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Syrupcreek-----	Strongly contrasting textural stratification	14-24	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
191: Limberjim-----	Strongly contrasting textural stratification	14-28	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Tamara-----	---	---	---	---	High	Moderate	Moderate
192: Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
193: Lookingglass-----	Abrupt textural change	12-30	---	Noncemented	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
194: Lookingglass-----	Abrupt textural change	12-30	---	Noncemented	Moderate	Moderate	Low
195: Lookingglass, stony---	Abrupt textural change	12-30	---	Noncemented	Moderate	Moderate	Low
196: Lookingglass, cobbly---	Abrupt textural change	12-30	---	Noncemented	Moderate	Moderate	Low
Lookingglass-----	Abrupt textural change	12-30	---	Noncemented	Moderate	Moderate	Low
197: Lookingglass-----	Abrupt textural change	12-30	---	Noncemented	Moderate	Moderate	Low
Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
198: Lookingglass-----	Abrupt textural change	12-30	---	Noncemented	Moderate	Moderate	Low
Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
199: Lostine-----	---	---	---	---	Moderate	Moderate	Low
200: Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Lawyer-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
201: Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Lawyer-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
202: Mallory-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Lawyer-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
203: Matheny-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	Low
Linville-----	---	---	---	---	Moderate	High	Low
Laufer-----	Bedrock (lithic)	10-20	---	Indurated	Low	Moderate	Low
204: Matterhorn-----	---	---	---	---	Low	High	Low
205: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low



Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
206: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
207: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
208: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
209: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
210: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
211: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
212: Minam-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
Minam, gravelly-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
Endoquepts-----	---	---	---	---	High	Moderate	Low
213: Minam, gravelly-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
Minam, stony-----	Strongly contrasting textural stratification	30-40	---	Noncemented	Moderate	Moderate	Low
Endoquepts-----	---	---	---	---	High	Moderate	Low
214: Mippon-----	Strongly contrasting textural stratification	10-20	---	Noncemented	Low	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
215: Mountemily-----	Strongly contrasting textural stratification	14-22	---	Noncemented	High	Moderate	Moderate
Troutmeadows-----	Strongly contrasting textural stratification	14-20	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
216: Mountemily-----	Strongly contrasting textural stratification	14-22	---	Noncemented	High	Moderate	Moderate
Troutmeadows-----	Strongly contrasting textural stratification	14-20	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
217: Mountemily-----	Strongly contrasting textural stratification	14-22	---	Noncemented	High	Moderate	Moderate
Troutmeadows-----	Strongly contrasting textural stratification	14-20	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
218: Mountemily-----	Strongly contrasting textural stratification	14-22	---	Noncemented	High	Moderate	Moderate
Troutmeadows-----	Strongly contrasting textural stratification	14-20	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
Anatone, cold-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
219: Needhill-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Parsnip-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
220: Needhill-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
Zumwalt-----	Abrupt textural change	6-15	---	Noncemented	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated			
221: Olot-----	Strongly contrasting textural stratification	14-20	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	20-40	---	Indurated			

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
222: Olot-----	Strongly contrasting textural stratification Bedrock (lithic)	14-20	---	Noncemented	Moderate	Moderate	Low
		20-40	---	Indurated			
223: Olot-----	Strongly contrasting textural stratification Bedrock (lithic)	14-20	---	Noncemented	Moderate	Moderate	Low
		20-40	---	Indurated			
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
224: Olot-----	Strongly contrasting textural stratification Bedrock (lithic)	14-20	---	Noncemented	Moderate	Moderate	Low
		20-40	---	Indurated			
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
225: Parsnip-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
226: Parsnip-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
227: Phys-----	---	---	---	---	Moderate	Moderate	Low
228: Phys-----	---	---	---	---	Moderate	Moderate	Low
Doublecreek-----	---	---	---	---	Low	Moderate	Low
Collegecreek-----	---	---	---	---	Low	Moderate	Low
229: Phys-----	---	---	---	---	Moderate	Moderate	Low
Doublecreek-----	---	---	---	---	Low	Moderate	Low
Collegecreek-----	---	---	---	---	Low	Moderate	Low
230: Powwatka-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
231: Powwatka-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
232: Powwatka-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
233: Powwatka-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
234: Puzzlecreek-----	Bedrock (lithic)	20-40	---	Indurated	High	Moderate	Moderate
235: Ramo-----	---	---	---	---	Moderate	Moderate	Low
236: Ramo-----	---	---	---	---	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
237: Ramo-----	---	---	---	---	Moderate	Moderate	Low
238: Ramo-----	---	---	---	---	Moderate	Moderate	Low
Conley-----	Abrupt textural change	15-30	---	Noncemented	Moderate	Moderate	Low
239: Reavis-----	---	---	---	---	Moderate	High	Low
240: Redmount-----	Strongly contrasting textural stratification	26-40	---	Noncemented	Moderate	Moderate	Low
241: Redmount-----	Strongly contrasting textural stratification	26-40	---	Noncemented	Moderate	Moderate	Low
242: Redmount-----	Strongly contrasting textural stratification	26-40	---	Noncemented	Moderate	Moderate	Low
243: Redmount-----	Strongly contrasting textural stratification	26-40	---	Noncemented	Moderate	Moderate	Low
Cheval-----	Strongly contrasting textural stratification	20-36	---	Noncemented	Moderate	High	Low
244: Riverwash-----	---	---	---	---	None	---	---
245: Rock outcrop, limestone	Bedrock (lithic)	0-0	---	Indurated	None	---	---
246: Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Fivebit-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
247: Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
248: Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
249: Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Immaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Cherrycreek-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
250: Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
251: Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
Dixiejett-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
252: Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Low	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Copperfield-----	---	---	---	---	Moderate	Moderate	Low
253: Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Lickskillet-----	Bedrock (lithic)	12-20	---	Indurated	Moderate	High	Low
254: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
255: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
256: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
257: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
258: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
259: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
260: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
261: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
262: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
263: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
264: Rondowa-----	---	---	---	---	Moderate	Moderate	Low
265: Rondowa-----	---	---	---	---	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
266: Rubble land-----	---	---	---	---	---	---	---
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
267: Sag-----	---	---	---	---	Moderate	Moderate	Low
268: Sag-----	---	---	---	---	Moderate	Moderate	Low
269: Sag-----	---	---	---	---	Moderate	Moderate	Low
270: Schrier-----	---	---	---	---	Moderate	High	Low
271: Schrier-----	---	---	---	---	Moderate	High	Low
Almota-----	Bedrock (lithic)	20-40	---	Indurated	Low	High	Low
272: Schrier-----	---	---	---	---	Moderate	High	Low
Almota-----	Bedrock (lithic)	20-40	---	Indurated	Low	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
273: Schuelke-----	Bedrock (lithic)	20-40	---	Indurated	Low	High	Low
Schrier-----	---	---	---	---	Moderate	High	Low
Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Low	Moderate	Low
274: Silverlake-----	Duripan	40-60	4-17	Strongly cemented	Moderate	High	Low
275: Slicklog-----	---	---	---	---	Moderate	Moderate	Low
276: Slicklog-----	---	---	---	---	Moderate	Moderate	Low
Eastpine-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
277: Slicklog-----	---	---	---	---	Moderate	Moderate	Low
Eastpine-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
278: Slicklog-----	---	---	---	---	Moderate	Moderate	Low
Wintercanyon-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
279: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
280: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
281: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
282: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
283: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
284: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
285: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
286: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
287: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
288: Snell-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Imnaha-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
289: Snow-----	---	---	---	---	Low	Moderate	Low
290: Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
291: Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
292: Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
293: Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
294: Sopher-----	Bedrock (lithic)	40-60	---	Indurated	Low	Moderate	Low
Gwinly-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
295: Sturgill-----	---	---	---	---	High	Moderate	Low
296: Sturgill-----	---	---	---	---	High	Moderate	Low
Eggleson-----	---	---	---	---	Moderate	Moderate	Low
297: Sweitberg-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
298: Sweitberg-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
299: Sweiting-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
300: Sweiting-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
301: Sweiting-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
302: Sweiting-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
303: Sweiting-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Klicker-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
304: Syrupcreek-----	Strongly contrasting textural stratification Bedrock (lithic)	14-24 20-40	---	Noncemented Indurated	High	Moderate	Moderate
305: Syrupcreek-----	Strongly contrasting textural stratification Bedrock (lithic)	14-24 20-40	---	Noncemented Indurated	High	Moderate	Moderate
Anatone-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
306: Syrupcreek-----	Strongly contrasting textural stratification Bedrock (lithic)	14-24 20-40	---	Noncemented Indurated	High	Moderate	Moderate
Lowerbluff-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Moderate
307: Syrupcreek-----	Strongly contrasting textural stratification Bedrock (lithic)	14-24 20-40	---	Noncemented Indurated	High	Moderate	Moderate
Tamara-----	---	---	---	---	High	Moderate	Moderate



Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>				
308: Syrupcreek-----	Strongly contrasting textural stratification Bedrock (lithic)	14-24	---	Noncemented	High	Moderate	Moderate
		20-40	---	Indurated			
Tamara-----	---	---	---	---	High	Moderate	Moderate
309: Tamara-----	---	---	---	---	High	Moderate	Moderate
Sherod-----	Bedrock (lithic)	10-20	---	Indurated	High	Moderate	Low
310: Tamara-----	---	---	---	---	High	Moderate	Moderate
Syrupcreek-----	Strongly contrasting textural stratification Bedrock (lithic)	14-24	---	Noncemented	High	Moderate	Moderate
		20-40	---	Indurated			
311: Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
312: Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Lowerbluff-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Moderate
313: Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Olot-----	Strongly contrasting textural stratification Bedrock (lithic)	14-20	---	Noncemented	Moderate	Moderate	Low
		20-40	---	Indurated			
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
314: Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Olot-----	Strongly contrasting textural stratification Bedrock (lithic)	14-20	---	Noncemented	Moderate	Moderate	Low
		20-40	---	Indurated			
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
315: Tannahill-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Low	Moderate
Schrier-----	---	---	---	---	Moderate	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
316: Tannahill-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Low	Moderate
Schuelke-----	Bedrock (lithic)	20-40	---	Indurated	Low	High	Low
Lickskillet-----	Bedrock (lithic)	12-20	---	Indurated	Moderate	High	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
317: Thiessen-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
318: Threebuck-----	Abrupt textural change	14-22	---	Noncemented	Moderate	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
319: Threebuck-----	Abrupt textural change	14-22	---	Noncemented	Moderate	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
320: Threebuck-----	Abrupt textural change	14-22	---	Noncemented	Moderate	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
321: Threebuck-----	Abrupt textural change	14-22	---	Noncemented	Moderate	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
322: Threebuck-----	Abrupt textural change	14-22	---	Noncemented	Moderate	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
323: Threebuck-----	Abrupt textural change	14-22	---	Noncemented	Moderate	Moderate	Moderate
	Bedrock (lithic)	40-60	---	Indurated			
Tamarackcanyon-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Linecreek-----	---	---	---	---	Moderate	Moderate	Low
324: Tippett-----	Abrupt textural change	15-25	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
325: Tippett-----	Abrupt textural change	15-25	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	40-60	---	Indurated			
Zumwalt-----	Abrupt textural change	6-15	---	Noncemented	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated			
326: Tolo-----	---	---	---	---	High	Moderate	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
327: Tolo-----	---	---	---	---	High	Moderate	Moderate
328: Tolo, fan-----	---	---	---	---	High	Moderate	Moderate
329: Tolo-----	---	---	---	---	High	Moderate	Moderate
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
330: Tolo-----	---	---	---	---	High	Moderate	Moderate
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
331: Tolo-----	---	---	---	---	High	Moderate	Moderate
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
332: Tolo-----	---	---	---	---	High	Moderate	Moderate
Getaway-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
333: Tolo-----	---	---	---	---	High	Moderate	Moderate
Olot-----	Strongly contrasting textural stratification	14-20	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	20-40	---	Indurated			
334: Tolo-----	---	---	---	---	High	Moderate	Moderate
Olot-----	Strongly contrasting textural stratification	14-20	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	20-40	---	Indurated			
335: Topper-----	---	---	---	---	Moderate	High	Low
336: Topper-----	---	---	---	---	Moderate	High	Low
337: Topper-----	---	---	---	---	Moderate	High	Low
338: Topper-----	---	---	---	---	Moderate	High	Low
339: Troutmeadows-----	Strongly contrasting textural stratification	14-20	---	Noncemented	High	Moderate	Moderate
	Bedrock (lithic)	20-40	---	Indurated			
Crawfish-----	Bedrock (lithic)	4-10	---	Indurated	High	Moderate	Moderate
340: Tuckerdowns-----	---	---	---	---	Moderate	Moderate	Low
341: Tuckerdowns-----	---	---	---	---	Moderate	Moderate	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
342: Tuckerdowns-----	---	---	---	---	Moderate	Moderate	Low
343: Vandamine-----	---	---	---	---	High	Moderate	Moderate
Bordengulch-----	Bedrock (lithic)	20-40	---	Indurated	High	Moderate	Moderate
344: Vandamine-----	---	---	---	---	High	Moderate	Moderate
Bordengulch-----	Bedrock (lithic)	20-40	---	Indurated	High	Moderate	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
345: Veazie-----	Strongly contrasting textural stratification	20-30	---	Noncemented	Moderate	Moderate	Low
346: Voats-----	Strongly contrasting textural stratification	10-20	---	Noncemented	Low	Moderate	Low
Veazie-----	Strongly contrasting textural stratification	20-30	---	Noncemented	Moderate	Moderate	Low
347: Volstead-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Quirk-----	Abrupt textural change	20-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	20-40	---	Indurated			
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
348: Volstead-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Low
Quirk-----	Abrupt textural change	20-30	---	Noncemented	Moderate	Moderate	Low
	Bedrock (lithic)	20-40	---	Indurated			
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
349: Wallowa-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Bocker-----	Bedrock (lithic)	4-10	---	Indurated	Moderate	Moderate	Low
350: Watama-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
351: Watama-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
352: Watama-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Low
Rockly-----	Bedrock (lithic)	5-12	---	Indurated	Moderate	Moderate	Low
353: Water-----	---	---	---	---	---	---	---

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		<i>In</i>	<i>In</i>				
354: Wilkins-----	Abrupt textural change	15-30	---	Noncemented	High	Moderate	Moderate
355: Wilkins-----	Abrupt textural change	15-30	---	Noncemented	High	Moderate	Moderate
Feaginranch-----	---	---	---	---	High	Moderate	Low
356: Wolot-----	---	---	---	---	Moderate	Moderate	Low
357: Zumwalt-----	Abrupt textural change	6-15	---	Noncemented	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated			
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
358: Zumwalt-----	Abrupt textural change	6-15	---	Noncemented	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated			
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low
359: Zumwalt-----	Abrupt textural change	6-15	---	Noncemented	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated			
Harlow-----	Bedrock (lithic)	10-20	---	Indurated	Moderate	Moderate	Low

Table 21.--Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Akerite-----	Ashy over loamy, glassy over isotic, frigid Aquic Vitrixerands
Albee-----	Fine-loamy, mixed, superactive, frigid Vitrandic Haploxerolls
Almota-----	Fine-loamy, mixed, superactive, mesic Calcic Haploxerolls
Analulu-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Anatone-----	Loamy-skeletal, mixed, superactive, frigid Lithic Haploxerolls
Balm-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Fluvaquentic Haploxerolls
Bittercreek-----	Coarse-loamy over sandy or sandy-skeletal, isotic over mixed, frigid Aquandic Endoaquolls
Bluecanyon-----	Loamy-skeletal, mixed, superactive, frigid Lithic Haploxerolls
Bocker-----	Loamy-skeletal, mixed, superactive, frigid Lithic Haploxerolls
Bordengulch-----	Loamy-skeletal, isotic Andic Eutrocryepts
Bridgewater-----	Loamy-skeletal, mixed, superactive, mesic Cumulic Haploxerolls
Btree-----	Ashy over clayey-skeletal, amorphic over smectitic, frigid Alfic Udivitrands
Bucketlake-----	Ashy over loamy-skeletal, amorphic over isotic Typic Vitricryands
Buford-----	Fine-loamy, mixed, superactive, frigid Vitrandic Haploxerolls
Bunchpoint-----	Coarse-loamy, isotic, frigid Vitrandic Haploxerolls
Catherine-----	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Chard-----	Coarse-loamy, mixed, superactive, mesic Calcic Haploxerolls
Cherrycreek-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Chesnimus-----	Fine-loamy, mixed, superactive, frigid Calcic Argixerolls
Cheval-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Aquic Cumulic Haploxerolls
Clearline-----	Ashy-skeletal, glassy, frigid Vitrandic Haploxerolls
Cloverland-----	Fine-silty, mixed, superactive, frigid Xeric Argialbolls
Collegecreek-----	Ashy over loamy, glassy over mixed, superactive, mesic Typic Vitrixerands
Conley-----	Fine, smectitic, mesic Xerertic Argialbolls
Copperfield-----	Loamy-skeletal, mixed, superactive, mesic Pachic Argixerolls
Cowsly-----	Fine, smectitic, frigid Xerertic Argialbolls
Crawfish-----	Loamy-skeletal, mixed, superactive, Humic Lithic Dystricryepts
Demasters-----	Fine-loamy, mixed, superactive, frigid Pachic Ultic Argixerolls
Dixiejett-----	Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls
Doublecreek-----	Coarse-loamy, mixed, superactive, mesic Pachic Haploxerolls
Downards-----	Loamy-skeletal, isotic, frigid Andic Hapludolls
Downeygulch-----	Coarse-loamy, mixed, superactive, frigid Vitrandic Haploxerepts
Eastpine-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerolls
Eggleson-----	Sandy-skeletal, mixed, frigid Oxyaquic Haploxerolls
Emily-----	Loamy-skeletal, isotic, mesic Vitrandic Haploxerolls
Endoaquents-----	Frigid Aeris Endoaquents
Endoaquepts-----	Frigid Endoaquepts
Endoaquolls, frigid-----	Frigid Endoaquolls
Endoaquolls, mesic-----	Mesic Endoaquolls
Feaginranch-----	Fine, isotic Aquandic Cryaquolls
Ferguson-----	Ashy over loamy-skeletal, amorphic over isotic, frigid Typic Udivitrands
Fivebit-----	Loamy-skeletal, mixed, superactive, frigid Lithic Ultic Haploxerolls
Flybow-----	Loamy-skeletal, mixed, superactive, nonacid, mesic Lithic Xerorthents
Flycreek-----	Ashy over clayey, amorphic over smectitic, frigid Alfic Udivitrands
Flyvalley-----	Ashy, amorphic, frigid Lithic Udivitrands
Freels-----	Coarse-loamy, mixed, superactive, frigid Cumulic Haploxerolls
Geisercreek-----	Ashy over clayey, amorphic over smectitic, frigid Alfic Udivitrands
Gelsinger-----	Fine, smectitic, mesic Calcic Pachic Argixerolls
Getaway-----	Loamy-skeletal, isotic, frigid Vitrandic Argixerolls
Gwin-----	Loamy-skeletal, mixed, superactive, mesic Lithic Argixerolls
Gwinly-----	Clayey-skeletal, smectitic, mesic Lithic Argixerolls
Hapludolls-----	Frigid Aquic Hapludolls
Harl-----	Ashy-skeletal over loamy-skeletal, amorphic over isotic, frigid Typic Udivitrands
Harlow-----	Clayey-skeletal, smectitic, frigid Lithic Argixerolls
Hershal-----	Coarse-silty over sandy or sandy-skeletal, mixed, superactive, mesic Cumulic Endoaquolls
Howmeadows-----	Fine, smectitic, frigid Vertic Epiaqualfs
Hurwal-----	Fine-silty, mixed, superactive, frigid Vitrandic Argixerolls
Imhaha-----	Loamy-skeletal, mixed, superactive, frigid Vitrandic Argixerolls
Imnaha-----	Loamy-skeletal, mixed, superactive, frigid Vitrandic Argixerolls
Josset-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Cumulic Haploxerolls
Kahler-----	Fine-loamy, isotic, frigid Vitrandic Haploxerolls
Kamela-----	Loamy-skeletal, isotic, frigid Vitrandic Haploxerepts
Kettenbach-----	Loamy-skeletal, mixed, superactive, mesic Pachic Argixerolls
Klicker-----	Loamy-skeletal, isotic, frigid Vitrandic Argixerolls
Klickson-----	Loamy-skeletal, isotic, frigid Vitrandic Argixerolls
Langrell-----	Loamy-skeletal, mixed, superactive, mesic Pachic Haploxerolls
Larabee-----	Loamy-skeletal, isotic, frigid Vitrandic Argixerolls

Table 21.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Laufer-----	Clayey-skeletal, smectitic, mesic Lithic Argixerolls
Lawyer-----	Loamy-skeletal, mixed, superactive, mesic Pachic Ultic Argixerolls
Licksillet-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Limberjim-----	Ashy over loamy-skeletal, amorphic over isotic, frigid Alfic Udivitrands
Linecreek-----	Ashy-skeletal, glassy, frigid Vitrandic Haploxerolls
Linville-----	Fine-loamy, mixed, superactive, mesic Pachic Haploxerolls
Lookingglass-----	Fine, smectitic, mesic Xerertic Argialbolls
Lostine-----	Coarse-silty, mixed, superactive, frigid Pachic Haploxerolls
Lowerbluff-----	Ashy, mixed, frigid Lithic Vitrikerands
Mallory-----	Clayey-skeletal, smectitic, mesic Pachic Argixerolls
Matheny-----	Loamy-skeletal, mixed, superactive, mesic Calcic Pachic Argixerolls
Matterhorn-----	Sandy-skeletal, mixed, frigid Typic Calcixerolls
Melhorn-----	Fine-loamy, isotic, frigid Vitrandic Argixerolls
Minam-----	Fine-loamy, isotic, frigid Vitrandic Haploxerolls
Mippon-----	Sandy-skeletal, mixed, frigid Fluventic Haploxerolls
Mountemily-----	Ashy over loamy-skeletal, amorphic over isotic Typic Vitricryands
Needhill-----	Loamy-skeletal, mixed, superactive, frigid Vitrandic Argixerolls
Olot-----	Ashy over loamy-skeletal, glassy over isotic, frigid Typic Vitrikerands
Parsnip-----	Loamy, mixed, superactive, frigid Lithic Argixerolls
Phys-----	Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls
Powwatka-----	Fine-silty, mixed, superactive, frigid Vitrandic Argixerolls
Puzzlecreek-----	Loamy-skeletal, isotic Andic Eutrochrypts
Quirk-----	Fine, smectitic, frigid Vitrandic Palexerolls
Ramo-----	Fine, smectitic, mesic Typic Argixerolls
Reavis-----	Fine-loamy, mixed, superactive, frigid Calcic Haploxerolls
Redmount-----	Coarse-loamy, mixed, superactive, frigid Pachic Haploxerolls
Rockly-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Rondowa-----	Loamy-skeletal, mixed, superactive, frigid Pachic Haploxerolls
Sag-----	Fine-loamy, mixed, superactive, frigid Pachic Argixerolls
Schrier-----	Fine-loamy, mixed, superactive, mesic Calcic Pachic Haploxerolls
Schuelke-----	Loamy-skeletal, mixed, superactive, mesic Calcic Argixerolls
Sherod-----	Loamy-skeletal, mixed, superactive, frigid Lithic Haploxerepts
Silverlake-----	Fine, smectitic, frigid Calcic Argixerolls
Slicklog-----	Ashy-skeletal, mixed, frigid Humic Vitrikerands
Snell-----	Clayey-skeletal, smectitic, frigid Pachic Argixerolls
Snow-----	Fine-silty, mixed, superactive, mesic Cumulic Haploxerolls
Sopher-----	Clayey-skeletal, smectitic, mesic Vitrandic Haploxeralfs
Sturgill-----	Fine-silty, mixed, superactive, frigid Fluvaquentic Endoaquolls
Sweitberg-----	Fine, smectitic, frigid Pachic Argixerolls
Sweiting-----	Fine, smectitic, frigid Pachic Ultic Argixerolls
Syrupcreek-----	Ashy over loamy-skeletal, amorphic over isotic, frigid Alfic Udivitrands
Tamara-----	Ashy over loamy, amorphic over isotic, frigid Alfic Udivitrands
Tamarackcanyon-----	Clayey-skeletal, smectitic, frigid Vitrandic Haploxeralfs
Tannahill-----	Loamy-skeletal, mixed, superactive, mesic Calcic Argixerolls
Thiessen-----	Clayey-skeletal, smectitic, mesic Pachic Argixerolls
Thirstygulch-----	Loamy-skeletal, mixed, superactive, frigid Lithic Ultic Haploxerolls
Threebuck-----	Ashy over clayey-skeletal, glassy over smectitic, frigid Alfic Vitrikerands
Tippett-----	Fine, smectitic, frigid Vertic Palexerolls
Tolo-----	Ashy over loamy, glassy over isotic, frigid Alfic Vitrikerands
Topper-----	Fine-silty, mixed, superactive, frigid Vitrandic Haploxerolls
Troutmeadows-----	Ashy over loamy-skeletal, amorphic over isotic Typic Vitricryands
Tuckerdowns-----	Loamy-skeletal, mixed, superactive, frigid Calcic Haploxerolls
Vandamine-----	Loamy-skeletal, isotic Andic Eutrochrypts
Veazie-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Cumulic Haploxerolls
Voats-----	Sandy-skeletal, mixed, mesic Fluventic Haploxerolls
Volstead-----	Fine, smectitic, frigid Vitrandic Argixerolls
Wallowa-----	Fine-loamy, mixed, superactive, frigid Pachic Haploxerolls
Watama-----	Fine-loamy, mixed, superactive, mesic Pachic Haploxerolls
Wilkins-----	Fine, smectitic, frigid Xerertic Argialbolls
Wintercanyon-----	Loamy-skeletal, mixed, superactive, frigid Lithic Ultic Haploxerolls
Wolot-----	Ashy over loamy, glassy over isotic, mesic Alfic Vitrikerands
Zumwalt-----	Fine, smectitic, frigid Vertic Palexerolls

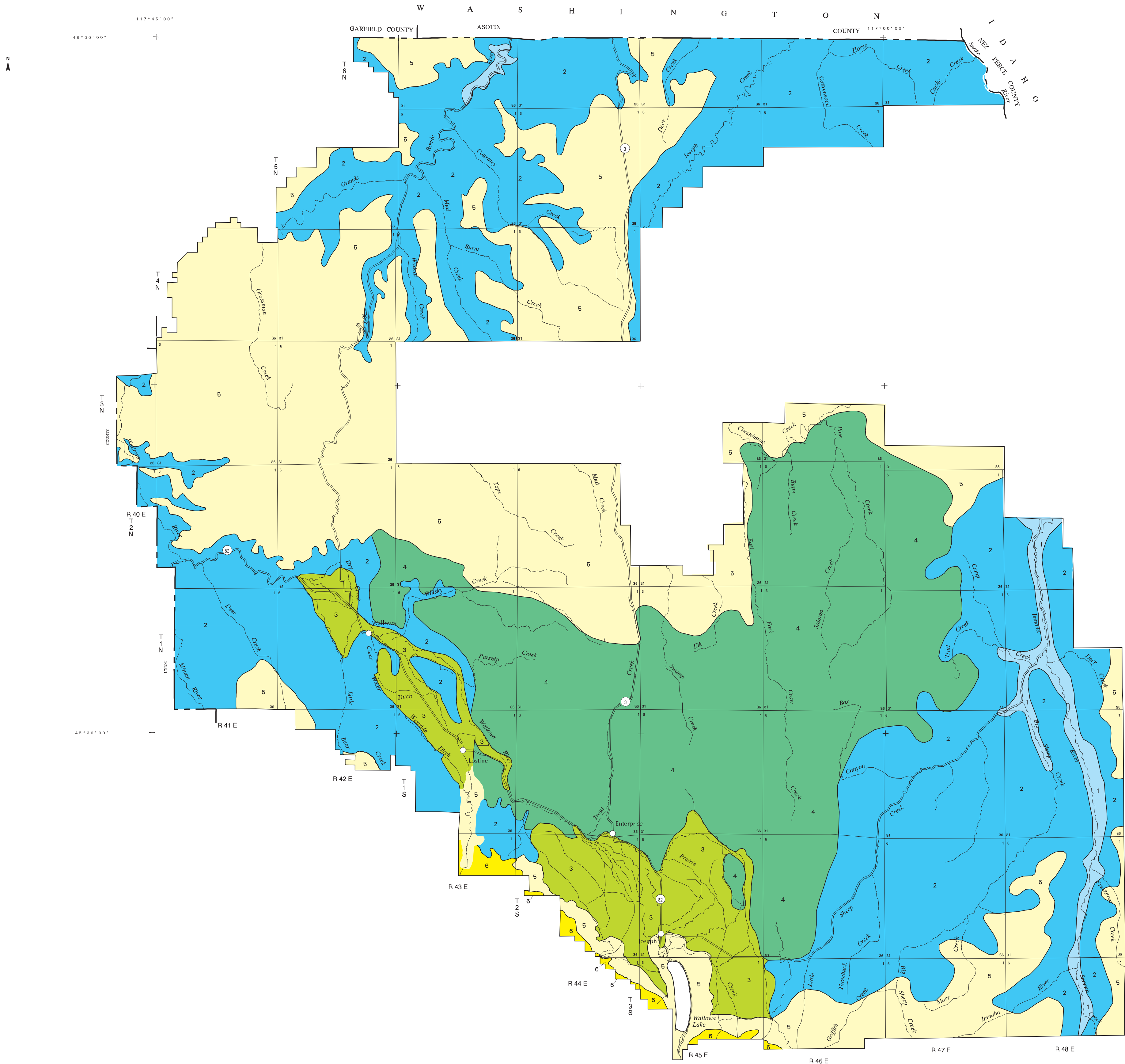
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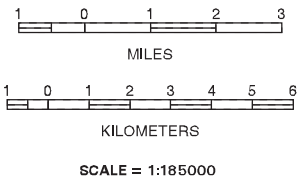
LEGEND

- 1 Zone 1 - Warm Lower Canyons
- 2 Zone 2 - Upper Canyon Drainageways
- 3 Zone 3 - Valley Bottomland
- 4 Zone 4 - Open Prairie Plateaus
- 5 Zone 5 - Forested Plateaus and Mountains/Mixed Prairie
- 6 Zone 6 - Cold Mountain Slopes

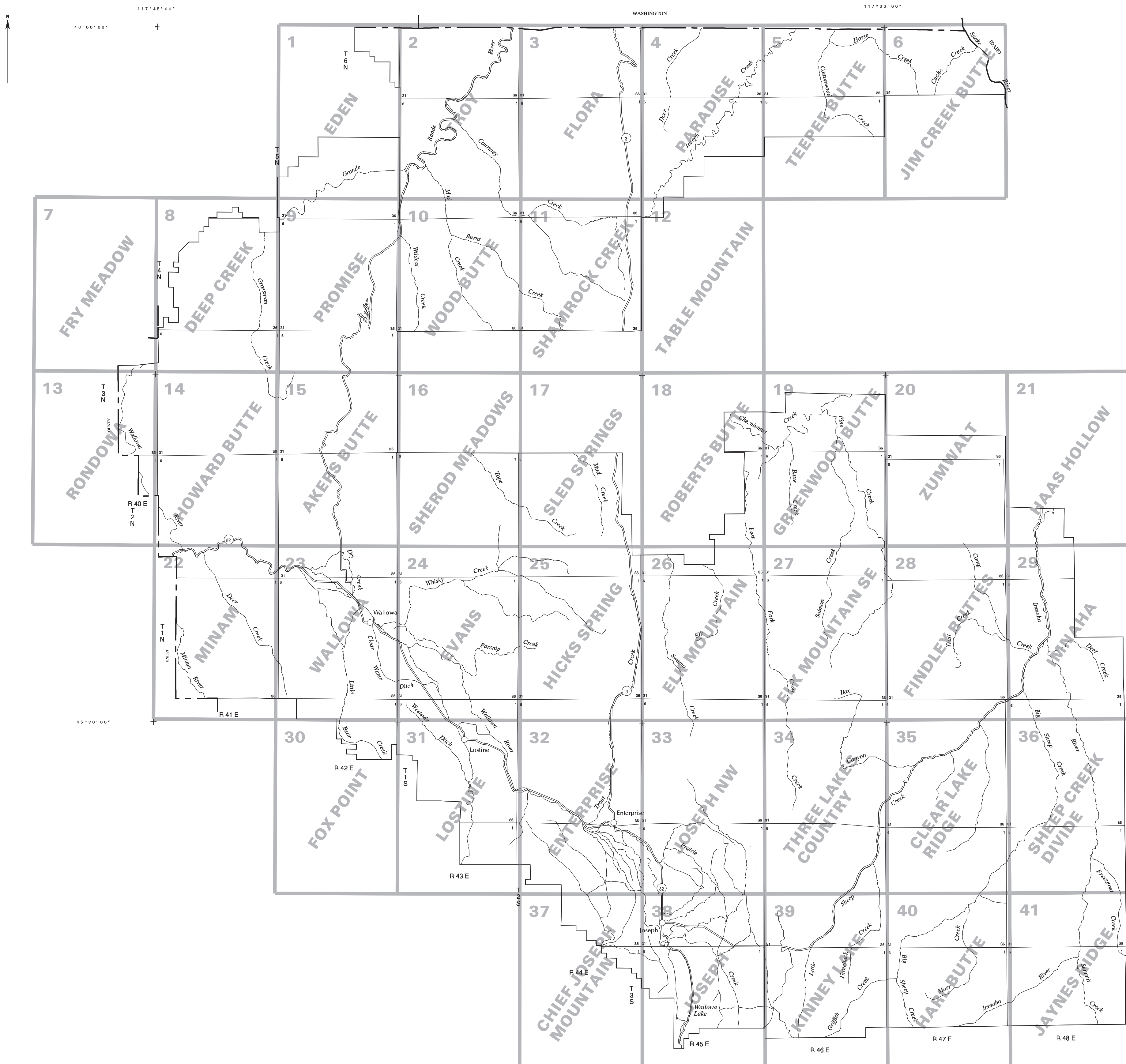
SECTIONALIZED  
TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

GENERAL VEGETATION ZONE MAP  
WALLOWA COUNTY AREA, OREGON



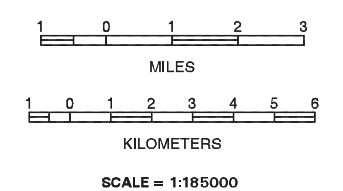




SECTIONALIZED TOWNSHIP						
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	23	24	
30	29	28	27	26	25	
31	32	33	34	35	36	

## INDEX TO MAP SHEETS

### WALLOWA COUNTY AREA, OREGON



SCALE = 1:185000

## SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

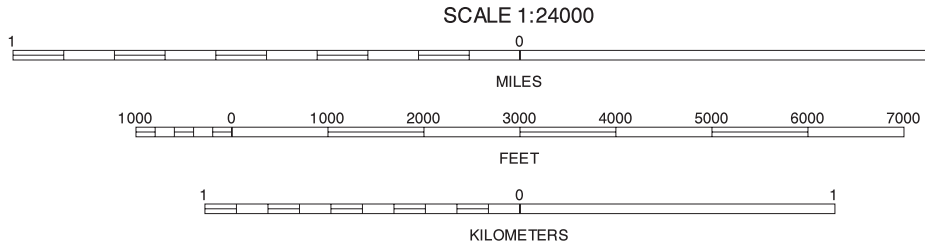
SYMBOL		NAME		SYMBOL		NAME		SYMBOL		NAME		BOUNDARIES		MISCELLANEOUS CULTURAL FEATURES		SOIL DELINEATIONS AND SYMBOLS		1	
1	Akerite silt loam, 2 to 8 percent slopes	73	Endoaquolls, 0 to 3 percent slopes	145	Imnaha-Clearline-Rock outcrop complex, 60 to 90 percent south slopes	217	Mountemily-Troutmeadows complex, 60 to 90 percent north slopes	289	Snow silt loam, 0 to 3 percent slopes		National, state, or province	---	Farmstead, house	■	LANDFORM FEATURES				
2	Akerite silt loam, 8 to 15 percent slopes	74	Ferguson very fine sandy loam, 2 to 15 percent slopes	146	Imnaha-Rock outcrop-Cherrycreek complex, 60 to 90 percent north slopes	218	Mountemily-Troutmeadows-Anatone complex, 60 to 90 percent north slopes	290	Sopher stony loam, 15 to 30 percent south slopes	---	County or parish	---	Church	⛪					
3	Albee-Anatone complex, 2 to 15 percent slopes	75	Ferguson very fine sandy loam, 15 to 30 percent north slopes	147	Josset loam, 0 to 2 percent slopes	219	Needhill-Parsnip-Bocker complex, 15 to 30 percent slopes	291	Sopher stony loam, 30 to 60 percent south slopes	---	Minor civil division	---	School	🏫	Bedrock escarpment				
4	Albee-Bocker complex, 2 to 15 percent slopes	76	Ferguson very fine sandy loam, 30 to 60 percent north slopes	148	Kahler-Anatone complex, 30 to 60 percent slopes	220	Needhill-Zumwalt complex, 0 to 15 percent slopes	292	Sopher-Gwiny complex, 30 to 60 percent north slopes	---	Reservation (national forest or park, state forest or park)	---	OtherReligion	⛪	Other than bedrock escarpment	~~~~~			
5	Analu-Slicklog-Bluecanyon complex, 30 to 60 percent south slopes	77	Ferguson very fine sandy loam, 15 to 30 percent south slopes	149	Kahler-Anatone-Rock outcrop complex, 60 to 90 percent slopes	221	Olot silt loam, 2 to 15 percent slopes	293	Sopher-Gwiny complex, 15 to 30 percent south slopes	---	Land grant	---	Located object	📍	Short steep slope	.....			
6	Analu-Slicklog-Rock outcrop complex, 60 to 90 percent south slopes	78	Ferguson very fine sandy loam, 30 to 60 percent south slopes	150	Kahler-Linecreek-Getaway complex, 30 to 60 percent north slopes	222	Olot silt loam, 15 to 30 percent north slopes	294	Sopher-Gwiny complex, 30 to 60 percent south slopes	---	Limit of soil survey (label) and/or denied access area	---	Gully	⚓					
7	Anatone-Bocker complex, 2 to 15 percent slopes	79	Flybow-Rubble land-Rock outcrop complex, 30 to 60 percent south slopes	151	Kahler-Linecreek-Getaway complex, 60 to 90 percent north slopes	223	Olot-Anatone complex, 2 to 15 percent slopes	295	Sturgill silt loam, 0 to 2 percent slopes	---	Previously Published Survey	---	Lookout Tower	🗿	Sinkhole	◆			
8	Anatone-Bocker complex, 15 to 30 percent south slopes	80	Flybow-Rubble land-Rock outcrop complex, 60 to 90 percent south slopes	152	Kicker stony silt loam, 2 to 15 percent slopes	224	Olot-Anatone complex, 15 to 30 percent south slopes	296	Sturgill-Eggleson complex, 0 to 2 percent slopes	---	OTHER BOUNDARY (label)	---	Oil and/or Natural Gas Wells	⛑					
9	Anatone-Bocker complex, 30 to 60 percent south slopes	81	Flycreek-Flyvalley complex, 2 to 15 percent slopes	153	Kicker stony silt loam, 15 to 30 percent north slopes	225	Parsnip silt loam, 2 to 8 percent slopes	297	Sweetberg silt loam, 2 to 8 percent slopes	---	Airport, airfield	---	Windmill	🌀	PITS				
10	Anatone-Bocker-Fivebit complex, 0 to 15 percent slopes	82	Freels silt loam, 0 to 3 percent slopes	154	Kicker stony silt loam, 30 to 60 percent north slopes	226	Parsnip-Bocker complex, 0 to 15 percent slopes	298	Sweetberg silt loam, 8 to 15 percent slopes	---			Lighthouse	🗼	Borrow pits	☒			
11	Anatone-Bocker-Fivebit complex, 30 to 60 percent south slopes	83	Geiscercreek silt loam, 15 to 30 percent north slopes	155	Kicker stony silt loam, 15 to 30 percent south slopes	227	Phys cobbly loam, 2 to 8 percent slopes	299	Sweeting silt loam, 8 to 15 percent slopes	---	STATE COORDINATE TICK	---	City/county park	🌳	Gravel pit	☒			
12	Anatone-Cherrycreek-Imnaha complex, 30 to 60 percent north slopes	84	Gelsinger silt loam, 2 to 8 percent slopes	156	Kicker stony silt loam, 30 to 60 percent south slopes	228	Phys-Doublecreek-Collegecreek complex, 2 to 15 percent slopes	300	Sweeting silt loam, 15 to 30 percent south slopes	---	LAND DIVISION CORNER (section and land grants)	---		+	Mine or quarry	⛏			
13	Anatone-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes	85	Gelsinger silt loam, 8 to 15 percent slopes	157	Kicker-Anatone complex, 2 to 15 percent slopes	229	Phys-Doublecreek-Collegecreek complex, 15 to 30 percent slopes	301	Syrupcreek silt loam, 0 to 15 percent slopes	---	GEOGRAPHIC COORDINATE TICK	---		+	Landfill	🗑			
14	Anatone-Kamela complex, 30 to 60 percent slopes	86	Getaway cobbly silt loam, 15 to 30 percent north slopes	158	Kicker-Anatone complex, 15 to 30 percent south slopes	230	Powwatka silt loam, 2 to 8 percent slopes	302	Syrupcreek-Anatone complex, 0 to 15 percent slopes	---	TRANSPORTATION	---	Perennial stream, double line	=====	MISCELLANEOUS SURFACE FEATURES				
15	Anatone-Klicker-Rock outcrop complex, 60 to 90 percent south slopes	87	Getaway cobbly silt loam, 30 to 60 percent north slopes	159	Kicker-Anatone complex, 30 to 60 percent south slopes	231	Powwatka silt loam, 8 to 15 percent slopes	303	Syrupcreek-Tamara complex, 15 to 30 percent north slopes	---	Divided roads	=====	Perennial stream, single line	=====	Blowout	☒			
16	Anatone-Linecreek-Rock outcrop complex, 60 to 90 percent south slopes	88	Getaway-Anatone-Rock outcrop complex, 60 to 90 percent slopes	160	Kicker-Fivebit-Anatone complex, 0 to 15 percent slopes	232	Powwatka silt loam, 15 to 30 percent north slopes	304	Syrupcreek-Tamara complex, 30 to 60 percent north slopes	---	Other roads	=====	Intermittent stream	=====	Clay spot	☒			
17	Anatone-Olot complex, 30 to 60 percent south slopes	89	Kicker-Fivebit-Harlow complex, 15 to 30 percent north slopes	161	Kicker-Fivebit-Anatone complex, 30 to 60 percent slopes	233	Powwatka silt loam, 15 to 30 percent south slopes	305	Tamarackcanyon-Imnaha complex, 15 to 30 percent north slopes	---	Trail	-----	Drainage end	=====	Gravelly spot	☒			
18	Anatone-Rock outcrop-Clearline complex, 60 to 90 percent south slopes	90	Getaway-Harlow complex, 30 to 60 percent north slopes	162	Kicker-Harlow complex, 15 to 30 percent south slopes	234	Puzzlecreek very stony very fine sandy loam, 20 to 60 percent north slopes	306	Tamarackcanyon-Olot-Harlow complex, 30 to 60 percent south slopes	---	ROAD EMBLEM AND DESIGNATIONS	---	Interstate	=====	Lava flow	=====			
19	Anatone-Rock outcrop-Fivebit complex, 60 to 90 percent north slopes	91	Getaway-Harlow-Rock outcrop complex, 60 to 90 percent north slopes	163	Kicker-Kamela-Fivebit complex, 60 to 90 percent slopes	235	Ramo silty clay loam, 2 to 8 percent slopes	307	Tannahl-Schrier-Rock outcrop complex, 60 to 90 percent slopes	---	Interstate	=====	Federal	=====	Rock outcrop (includes sandstone and shale)	∨			
20	Anatone-Rock outcrop-Imnaha complex, 60 to 90 percent north slopes	92	Getaway-Linecreek-Anatone complex, 30 to 60 percent slopes	164	Kicker-Olot complex, 30 to 60 percent north slopes	236	Ramo silty clay loam, 8 to 15 percent slopes	308	Thiessen very cobbly silt loam, 15 to 30 percent north slopes	---	State	=====	State	=====	Sandy spot	☒			
21	Balm-Catherine complex, 0 to 3 percent slopes	93	Getaway-Snell complex, 30 to 70 percent north slopes	165	Kicker-Thirstygluch-Anatone complex, 15 to 30 percent slopes	237	Ramo silty clay loam, 15 to 30 percent north slopes	310	Threebuck-Harlow complex, dry, 2 to 15 percent slopes	---	County, farm or ranch	=====	County, farm or ranch	=====	Severely eroded spot	☒			
22	Bittercreek-Mippon complex, 0 to 3 percent slopes	94	Gwin-Kettenbach-Rock outcrop complex, 30 to 60 percent south slopes	166	Kicker-Thirstygluch-Anatone complex, 30 to 60 percent slopes	238	Ramo silty clay loam, 15 to 30 percent north slopes	311	Threebuck-Linecreek-Harlow complex, 60 to 90 percent north slopes	---	RAILROAD	=====	RAILROAD	=====	Slide or slip	☒			
23	Bocker extremely cobbly silt loam, 2 to 8 percent slopes	95	Gwin-Kettenbach-Rock outcrop complex, 60 to 90 percent south slopes	167	Kicker-Rock outcrop-Anatone complex, 60 to 90 percent slopes	239	Reavis silt loam, 0 to 3 percent slopes	312	Tamarackcanyon-Lowerbluff complex, 2 to 15 percent slopes	---	POWER TRANSMISSION LINE	-----	POWER TRANSMISSION LINE	-----	Sodic spot	☒			
24	Bocker-Anatone-Rock outcrop complex, 2 to 15 percent slopes	96	Gwin-Klickson-Kettenbach association, 60 to 90 percent slopes	168	Klickson-Anatone-Larabee complex, 30 to 60 percent north slopes	240	Redmont silt loam, 0 to 3 percent slopes	313	Tamarackcanyon-Olot-Harlow complex, 15 to 30 percent south slopes	---	PIPELINE	-----	PIPELINE	-----	Spoil area	☒			
25	Bocker-Anatone-Rock outcrop complex, 15 to 30 percent slopes	97	Gwin-Kettenbach-Rock outcrop complex, 60 to 90 percent south slopes	169	Klickson-Anatone-Larabee complex, 60 to 90 percent north slopes	241	Redmont silt loam, 3 to 10 percent slopes	314	Tamarackcanyon-Olot-Harlow complex, 30 to 60 percent south slopes	---	FENCE	-----	FENCE	-----	Stony spot	0			
26	Bocker-Clearline-Rock outcrop complex, 60 to 90 percent south slopes	98	Gwin-Mallory complex, 3 to 10 percent slopes	170	Klickson-Larabee complex, 15 to 30 percent north slopes	242	Redmont gravelly silt loam, 0 to 3 percent slopes	315	Tannahl-Schrier-Rock outcrop complex, 60 to 90 percent slopes	---					Very stony spot	☒			
27	Bocker-Imnaha-Rock outcrop complex, 30 to 60 percent south slopes	99	Gwin-Mallory complex, 30 to 70 percent south slopes	171	Klickson-Larabee-Volstead complex, 30 to 60 percent north slopes	243	Redmont-Cheval complex, 0 to 2 percent slopes	316	Tannahl-Schuelke-Lickskillet complex, 30 to 60 percent south slopes	---									
28	Bridgewater extremely stony sandy loam, 0 to 15 percent slopes	100	Gwin-Mallory-Kettenbach complex, 15 to 30 percent south slopes	172	Langrell gravelly loam, 0 to 3 percent slopes	244	Riverwash	317	Thiessen very cobbly silt loam, 15 to 30 percent north slopes	---	RAILROAD	=====	RAILROAD	=====	Slide or slip	☒			
29	Btree-Flycreek complex, 15 to 30 percent north slopes	101	Gwin-Mallory-Kettenbach complex, 30 to 60 percent south slopes	173	Langrell-Snow complex, 0 to 3 percent slopes	245	Rock outcrop, limestone, 60 to 90 percent slopes	318	Threebuck-Harlow complex, dry, 2 to 15 percent slopes	---	POWER TRANSMISSION LINE	-----	POWER TRANSMISSION LINE	-----	Sodic spot	☒			
30	Btree-Flycreek complex, 30 to 60 percent north slopes	102	Gwin-Mallory-Kettenbach complex, 60 to 90 percent south slopes	174	Larabee-Getaway-Klickson complex, 30 to 60 percent north slopes	246	Rock outcrop-Anatone-Fivebit complex, scarp, 60 to 90 percent south slopes	319	Threebuck-Linecreek-Harlow complex, 60 to 90 percent north slopes	---	PIPELINE	-----	PIPELINE	-----	Spoil area	☒			
31	Btree-Flycreek-Anatone complex, 30 to 60 percent north slopes	103	Gwin-Mallory-Rock outcrop complex, 40 to 90 percent south slopes	175	Larabee-Klickson-Volstead complex, 15 to 30 percent north slopes	247	Rock outcrop-Anatone-Imnaha complex, scarp, 60 to 90 percent north slopes	320	Threebuck-Tamarackcanyon complex, 15 to 30 percent north slopes	---	FENCE	-----	FENCE	-----	Stony spot	0			
32	Btree-Flycreek-Anatone complex, 60 to 90 percent north slopes	104	Gwin-Mallory-Rock outcrop complex, 40 to 90 percent south slopes	176	Larabee-Klickson-Volstead complex, 30 to 60 percent north slopes	248	Rock outcrop-Anatone-Imnaha complex, scarp, 60 to 90 percent north slopes	321	Threebuck-Tamarackcanyon complex, 30 to 60 percent north slopes	---									
33	Btree-Klicker-Anatone complex, 60 to 90 percent slopes	105	Gwin-Mallory-Rock outcrop complex, 60 to 120 percent north slopes	177	Larabee-Melhorn complex, 0 to 15 percent slopes	249	Rock outcrop-Imnaha-Cherrycreek complex, scarp, 60 to 90 percent north slopes	322	Threebuck-Tamarackcanyon-Harlow complex, 30 to 60 percent north slopes	---									
34	Bucketlake silt loam, 15 to 30 percent north slopes	106	Gwin-Mallory-Rock outcrop complex, 60 to 90 percent north slopes	178	Larabee-Volstead complex, 15 to 30 percent north slopes	250	Rock outcrop-Linecreek-Anatone complex, scarp, 60 to 90 percent slopes	323	Threebuck-Tamarackcanyon-Linecreek complex, 60 to 90 percent north slopes	---									
35	Bucketlake silt loam, 30 to 60 percent north slopes	107	Gwin-Mallory-Rock outcrop complex, 60 to 90 percent north slopes	179	Larabee-Volstead complex, 15 to 30 percent north slopes	251	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	324	Tippett-Harlow complex, 0 to 3 percent slopes	---									
36	Buford-Anatone complex, 2 to 15 percent slopes	108	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	180	Laufer-Thiessen complex, 15 to 30 percent south slopes	252	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	325	Tippett-Zumwalt complex, 0 to 3 percent slopes	---									
37	Buford-Bocker complex, 2 to 15 percent slopes	109	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	181	Laufer-Thiessen complex, 30 to 60 percent south slopes	253	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	326	Tolo silt loam, 2 to 15 percent slopes	---									
38	Bunchpoint silt loam, 0 to 15 percent slopes	110	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	182	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	254	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	327	Tolo silt loam, 15 to 30 percent north slopes	---									
39	Bunchpoint-Bocker complex, 0 to 15 percent slopes	111	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	183	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	255	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	328	Tolo silt loam, fan, 2 to 15 percent slopes	---									
40	Chard very fine sandy loam, 15 to 30 percent slopes	112	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	184	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	256	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	329	Tolo silt loam, fan, 2 to 15 percent slopes	---									
41	Cherrycreek-Imnaha complex, 2 to 15 percent slopes	113	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	185	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	257	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	330	Tolo-Getaway complex, 15 to 30 percent north slopes	---									
42	Cherrycreek-Imnaha complex, 15 to 30 percent north slopes	114	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	186	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	258	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	331	Tolo-Getaway complex, 30 to 60 percent north slopes	---									
43	Cherrycreek-Imnaha-Rock outcrop complex, 60 to 90 percent north slopes	115	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	187	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	259	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	332	Tolo-Getaway complex, dry, 15 to 30 percent north slopes	---									
44	Cherrycreek-Limberjim-Rock outcrop complex, 30 to 60 percent north slopes	116	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	188	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	260	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	333	Tolo-Getaway complex, dry, 30 to 60 percent north slopes	---									
45	Chesnimus silt loam, 0 to 3 percent slopes	117	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	189	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	261	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	334	Tolo-Olot complex, 15 to 30 percent north slopes	---									
46	Chesnimus gravelly loam, 0 to 3 percent slopes	118	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	190	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	262	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	335	Tolo-Olot complex, 15 to 30 percent north slopes	---									
47	Cheval silt loam, 0 to 2 percent slopes	119	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	191	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	263	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	336	Topper silt loam, 2 to 8 percent slopes	---									
48	Cloverland silt loam, 2 to 8 percent slopes	120	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	192	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	264	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	337	Topper silt loam, 8 to 15 percent slopes	---									
49	Cloverland silt loam, 8 to 15 percent slopes	121	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	193	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	265	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	338	Topper silt loam, 15 to 30 percent north slopes	---									
50	Conley silty clay loam, 0 to 2 percent slopes	122	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	194	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	266	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	339	Topper silt loam, 15 to 30 percent south slopes	---									
51	Conley silty clay loam, 2 to 8 percent slopes	123	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	195	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	267	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	340	Troumeadows-Crawfish complex, 2 to 15 percent slopes	---									
52	Copperfield-Thiessen complex, 30 to 60 percent north slopes	124	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	196	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	268	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	341	Tuckerdowns gravelly loam, 2 to 8 percent slopes	---									
53	Copperfield-Thiessen-Rock outcrop complex, 60 to 90 percent north slopes	125	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	197	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	269	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	342	Tuckerdowns gravelly loam, 8 to 15 percent slopes	---									
54	Cowsly silt loam, 2 to 8 percent slopes	126	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	198	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	270	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	343	Tuckerdowns gravelly loam, 15 to 30 percent south slopes	---									
55	Cowsly silt loam, 8 to 15 percent slopes	127	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	199	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	271	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	344	Vandamine-Bordengulch complex, 30 to 60 percent north slopes	---									
56	Cowsly stony silt loam, 2 to 15 percent slopes	128	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	200	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	272	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	345	Vandamine-Bordengulch-Rock outcrop complex, 60 to 90 percent north slopes	---									
57	Cowsly complex, 2 to 30 percent north slopes	129	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	201	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	273	Rock outcrop-Rocky-Dixiejet complex, scarp, 60 to 90 percent south slopes	346	Veazie loam, 0 to 3 percent slopes	---									
58	Cowsly complex, 2 to 30 percent south slopes	130	Hapludolls-Endoaquolls-Endoaquolls complex, 0 to 5 percent slopes	202	Laufer-Thiessen-Rock outcrop complex, 60 to 90 percent south slopes	274													





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8	DEEP CREEK
9	PROMISE
10	WOOD BUTTE

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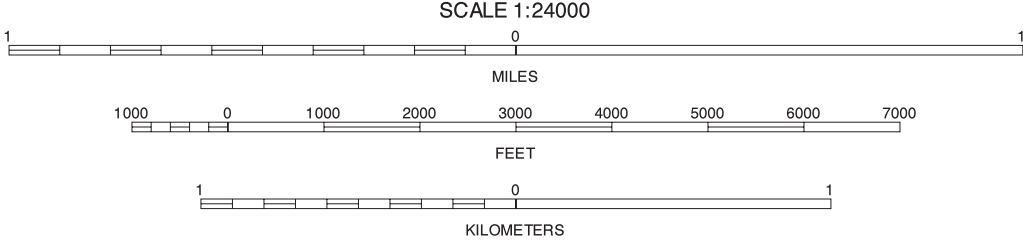
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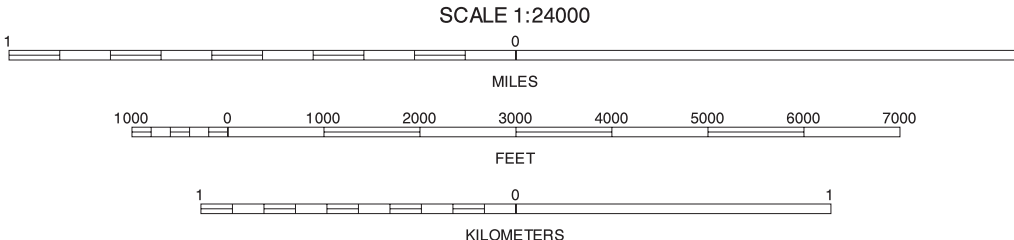


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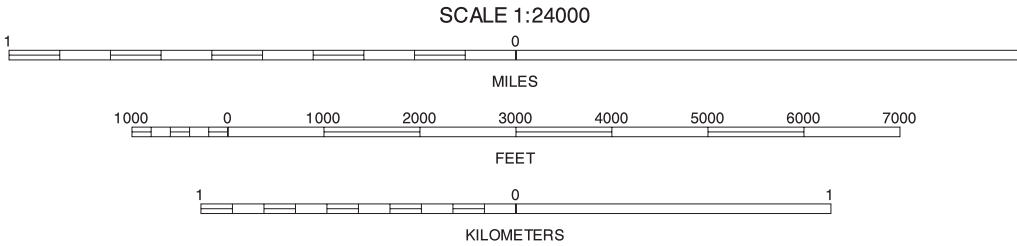
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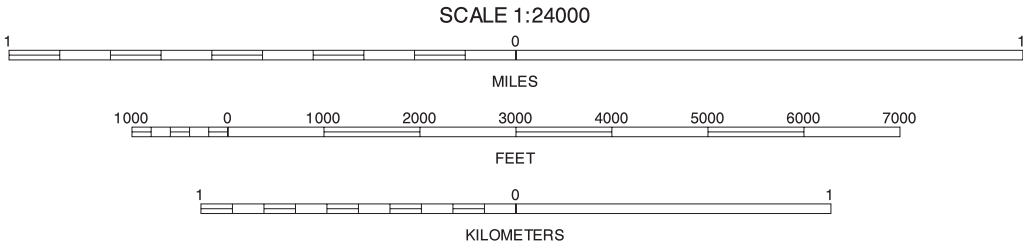
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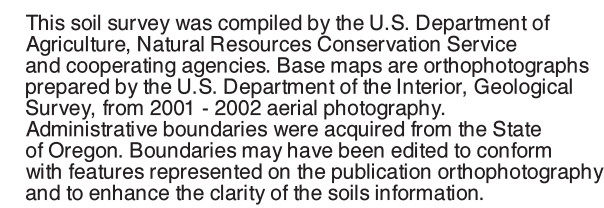
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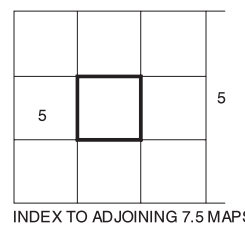




NORTH



QUADRANGLE LOCATION



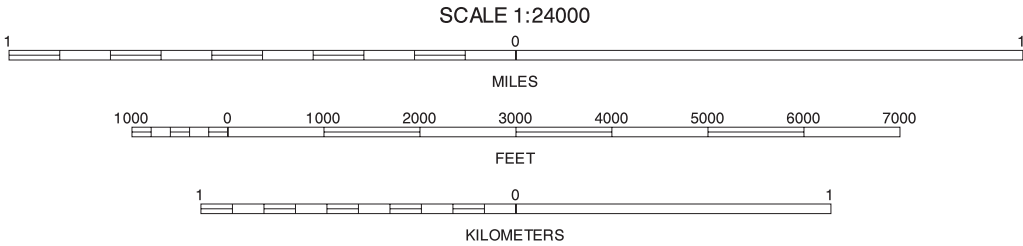
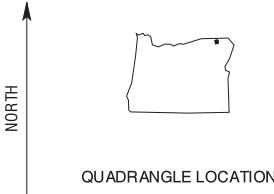
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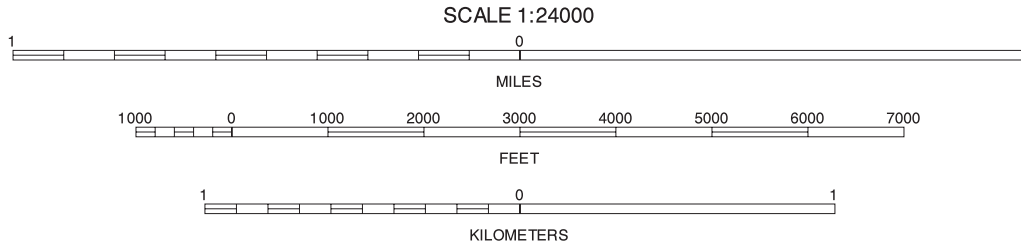
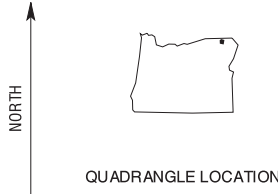
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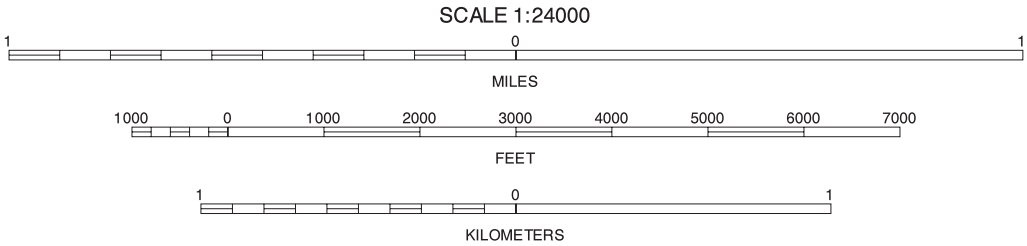
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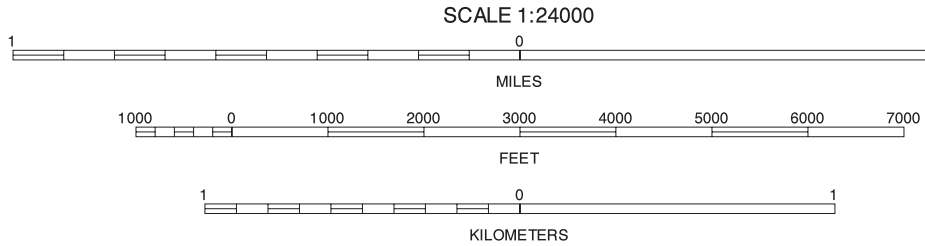
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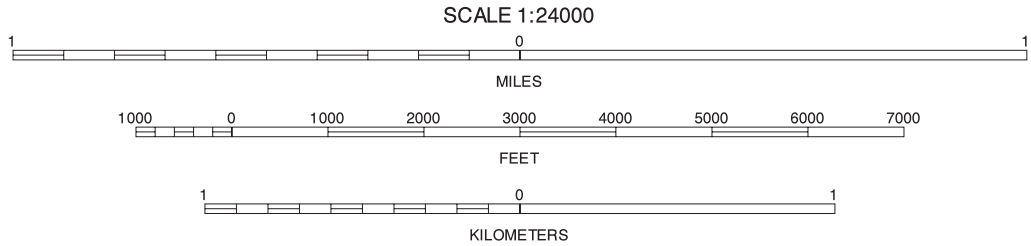
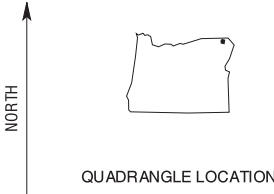
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



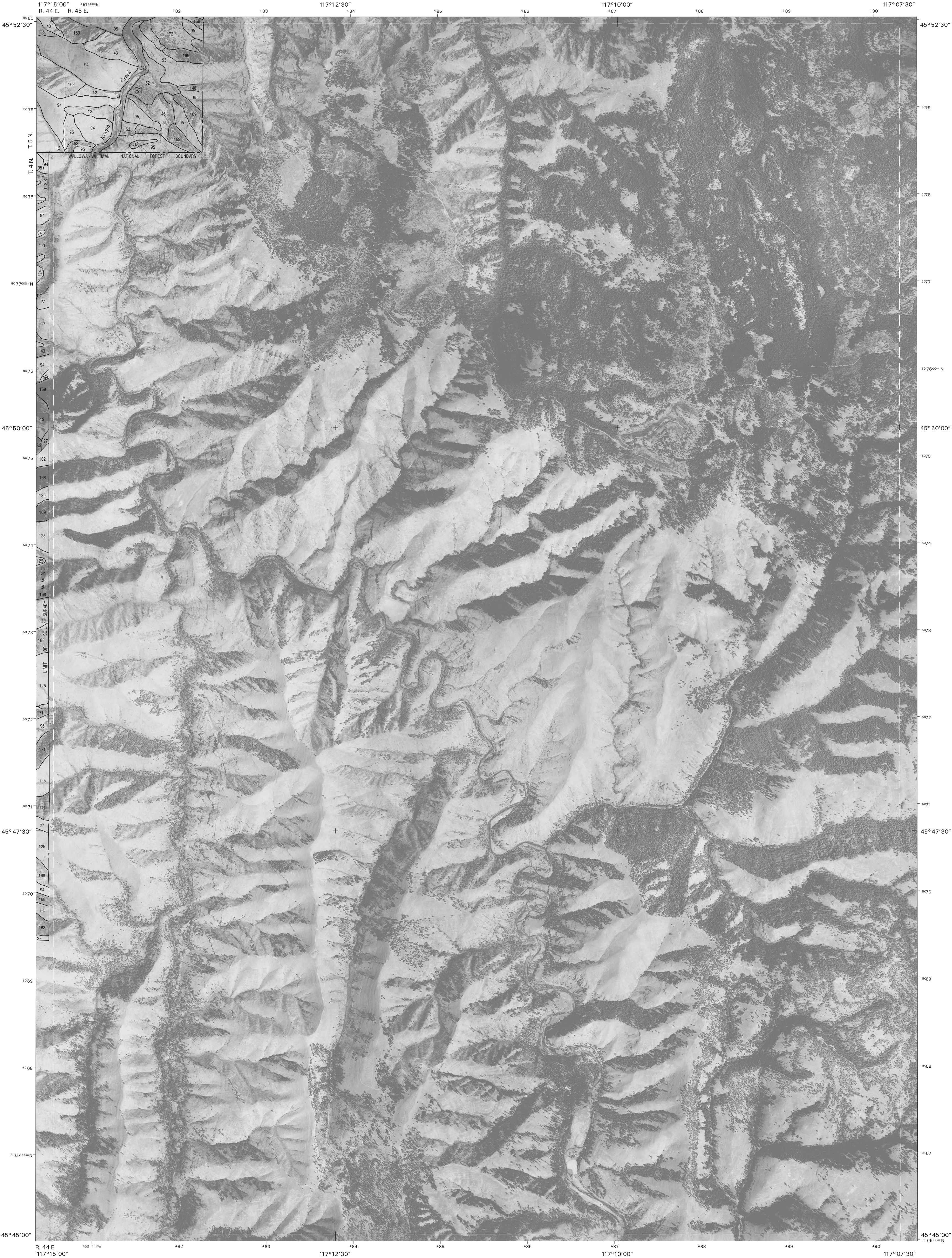
2	3	4
10	12	
16	17	18

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SHAMROCK CREEK, OREGON  
7.5-MINUTE SERIES  
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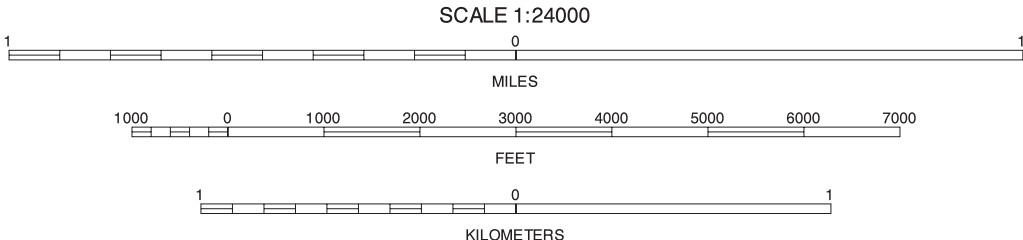
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3	4	5	3 FLORA
			4 PARADISE
			5 TEEPEE BUTTE
11			11 SHAMROCK CREEK
			17 SLED SPRINGS
			18 ROBERTS BUTTE
17	18	19	19 GREENWOOD BUTTE

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TABLE MOUNTAIN, OREGON  
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





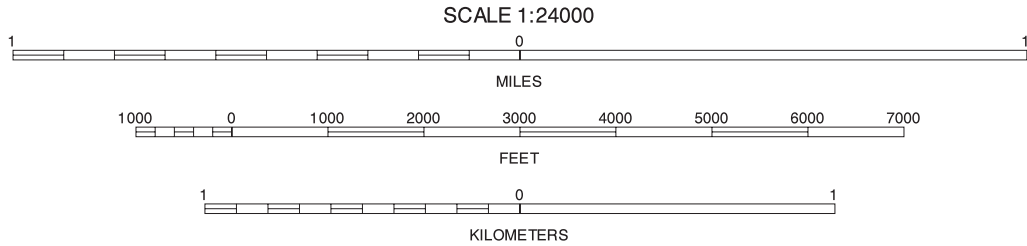
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NORTH



QUADRANGLE LOCATION



7	8	7 FRY MEADOW
		8 DEEP CREEK
	14	14 HOWARD BUTTE
	22	22 MINAM

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RONDOWA, OREGON  
7.5 MINUTE SERIES  
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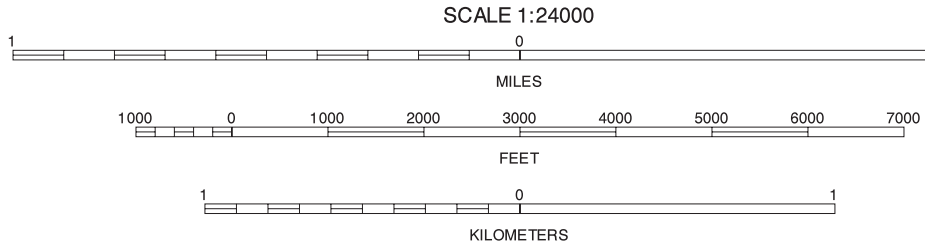
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	22	23

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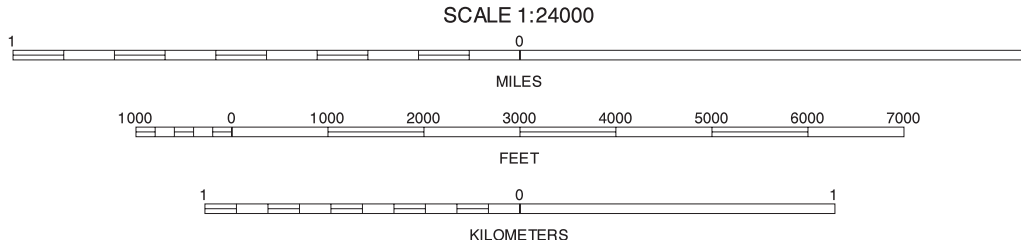
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8	9	10
14	15	16
22	23	24

AKERS BUTTE, OREGON  
7.5 MINUTE SERIES  
SHEET NUMBER 15 OF 41

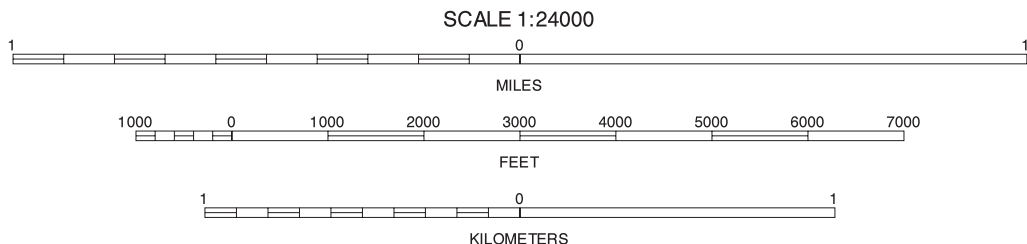
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15	16	17
23	24	25

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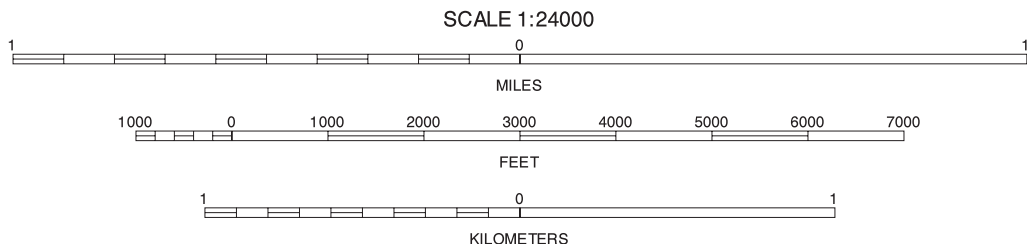
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24	25	26

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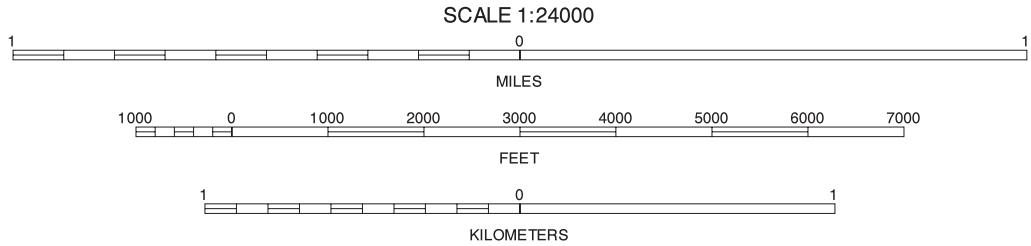
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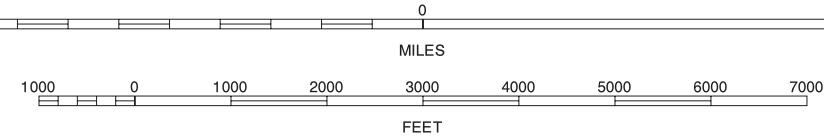
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NORTH



QUADRANGLE LOCATION

SCALE 1:24000



12			12	TABLE MOUNTAIN
18		20	18	ROBERTS BUTTE
26	27	28	26	ZUNWALT
			27	ELK MOUNTAIN
			28	ELK MOUNTAIN SE
				FINDLEY BUTTES

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GREENWOOD BUTTE, OREGON  
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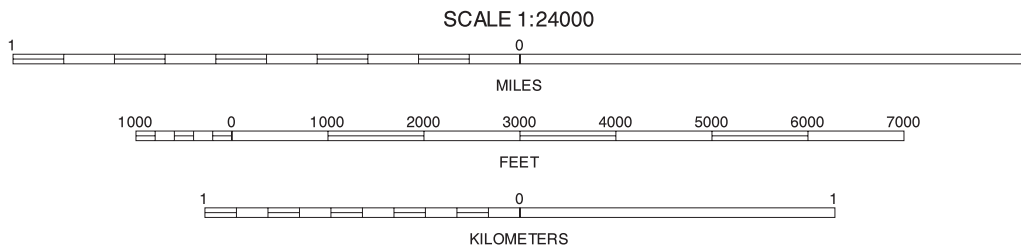
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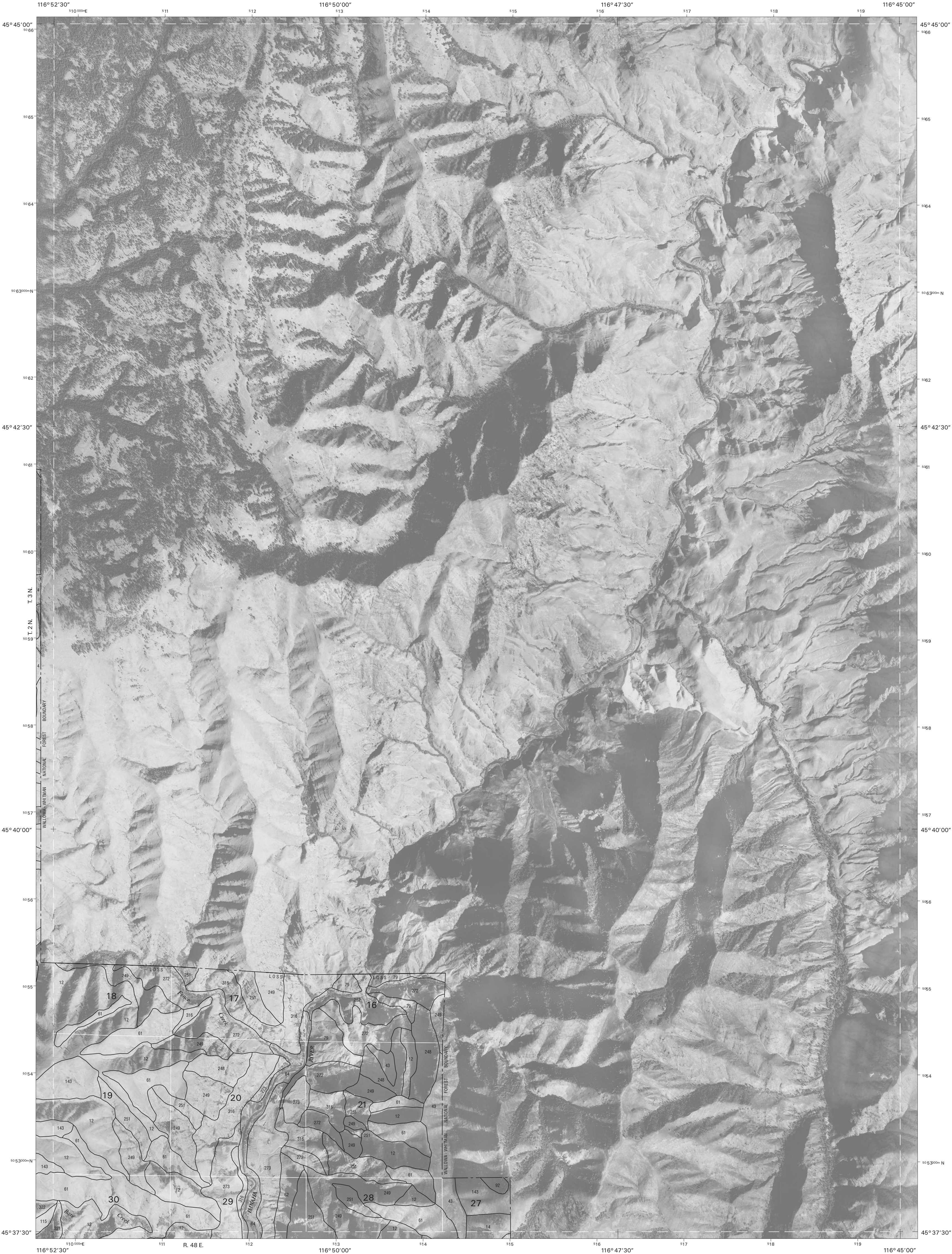


19	21	19 GREENWOOD BUTTE
27	28	27 HAAS HOLLOW
27	28	28 ELK MOUNTAIN SE
27	28	29 FINDLEY BUTTES
27	28	29 IMNAHA

ZUMWALT, OREGON  
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





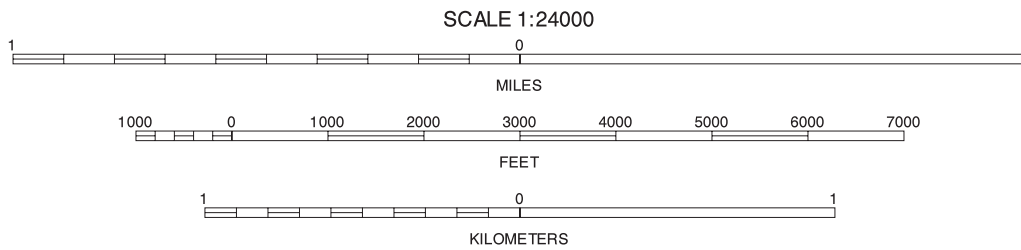
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NORTH



QUADRANGLE LOCATION



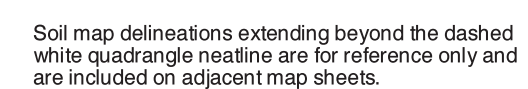
20	28	29	20 ZUMWALT	28 FINDLEY BUTTES	29 IMNAHA
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HAAS HOLLOW, OREGON  
7.5 MINUTE SERIES  
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



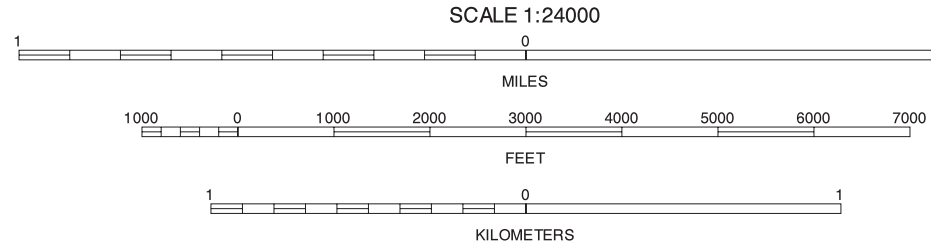






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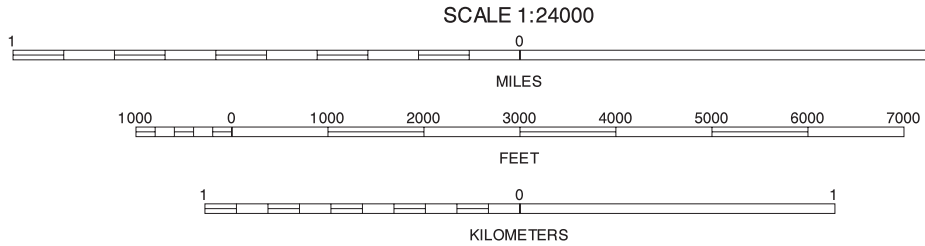
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15	16	17
23	24	25
30	31	32

EVANS, OREGON  
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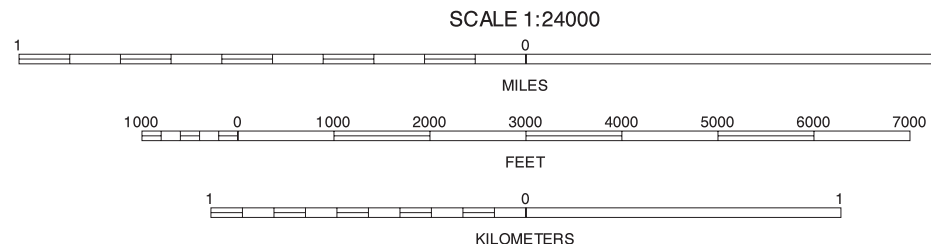
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24	25	26
31	32	33

HICKS SPRING, OREGON  
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



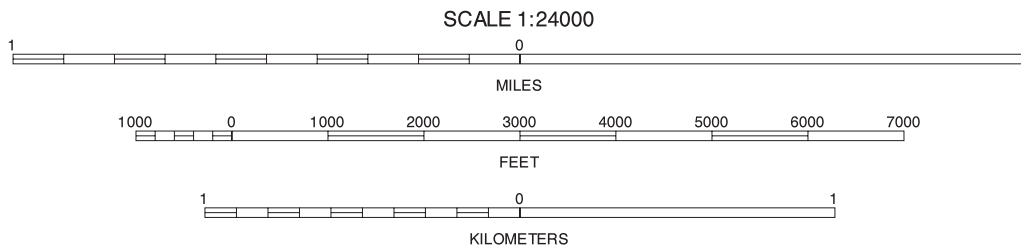


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QUADRANGLE LOCATION



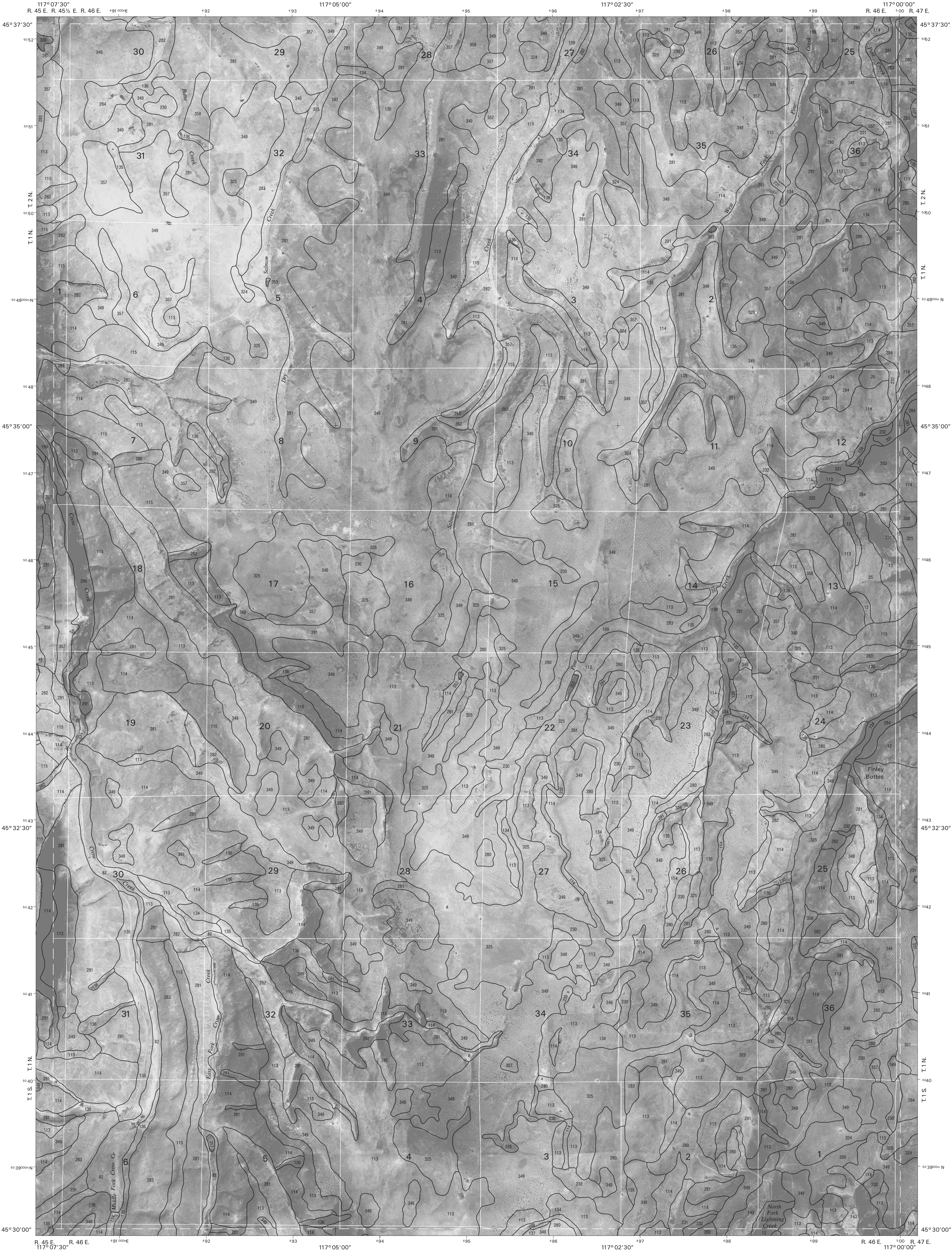
17	18	19	17 SLED SPRINGS
25	26	27	18 ROBERTS BUTTE
32	33	34	19 GREENWOOD BUTTE
			25 HICKS SPRING
			27 ELK MOUNTAIN SE
			32 ENTERPRISE
			33 JOSEPH NW
			34 THREE LAKES COUNTRY

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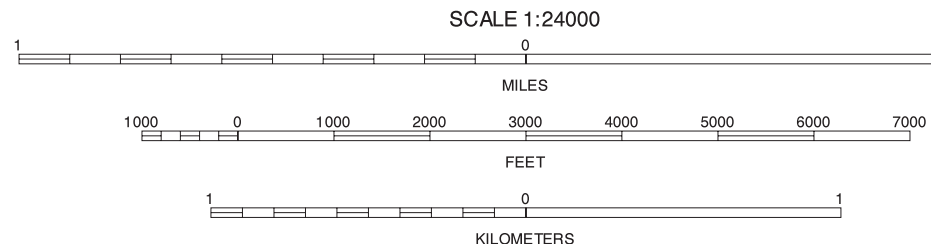
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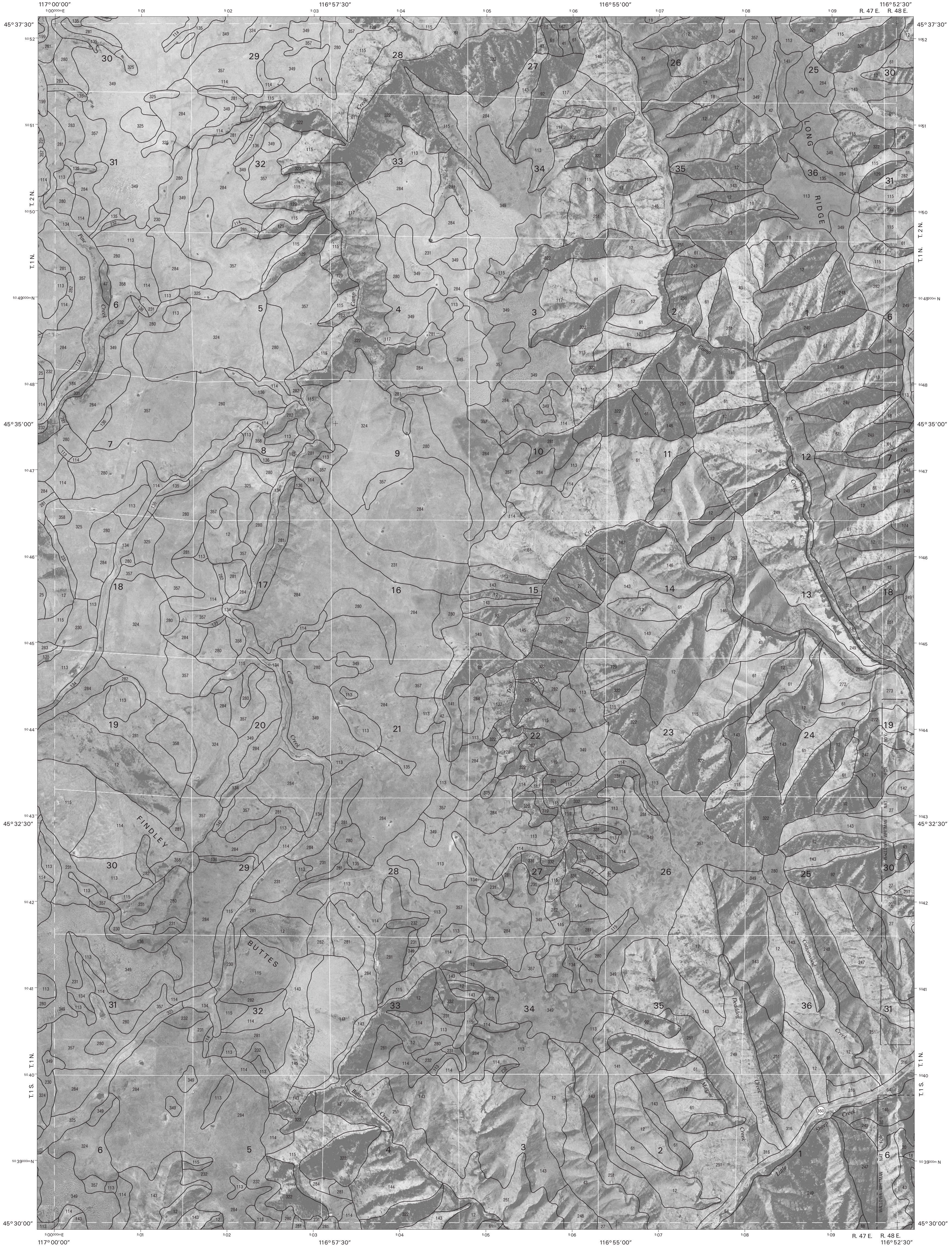
18	19	20
26		28
33	34	35

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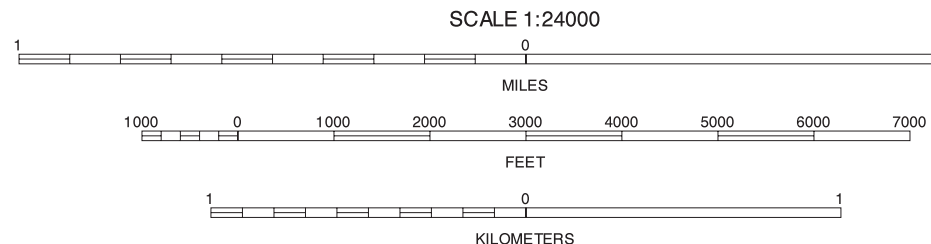
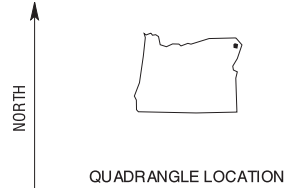
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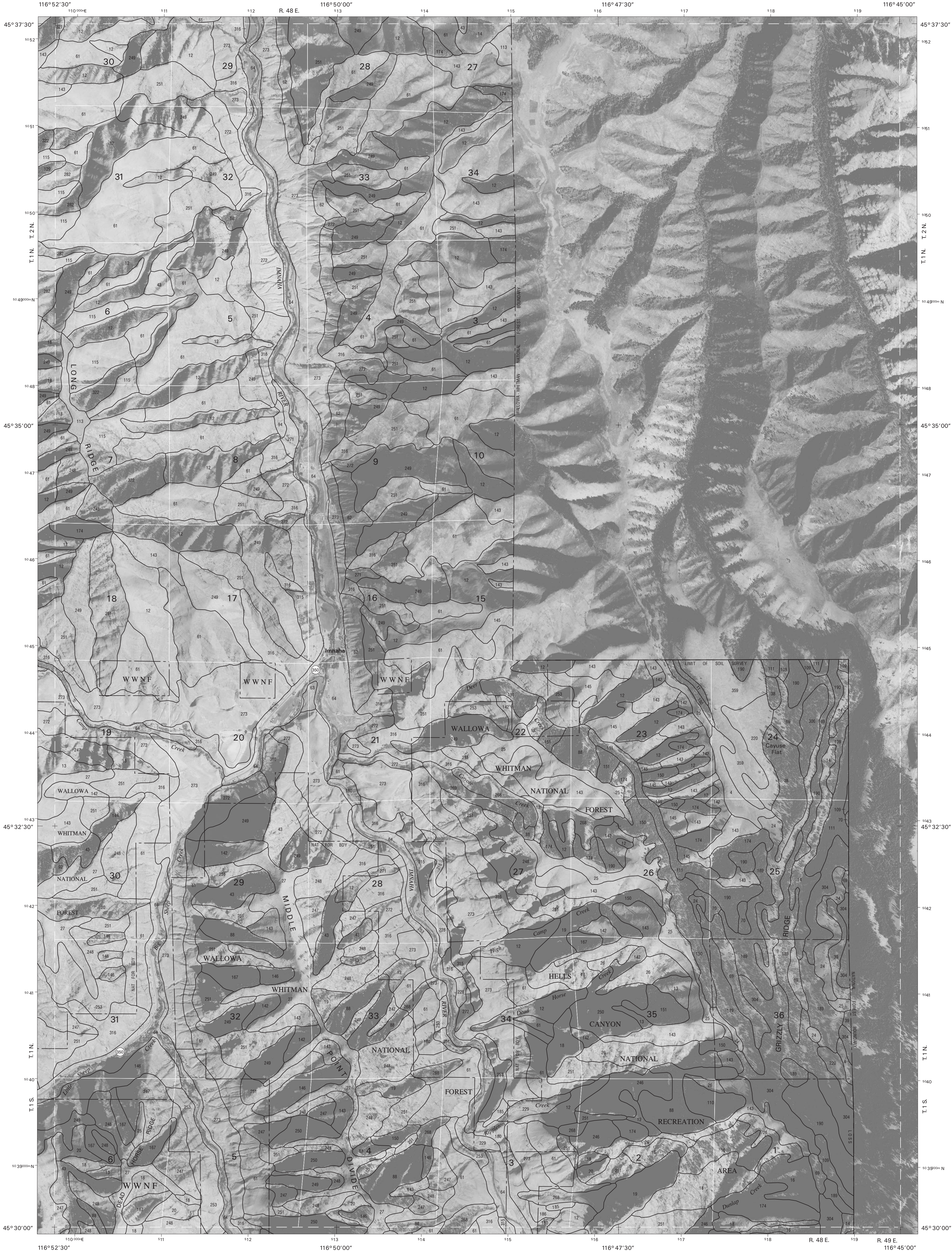


19	20	21
27		29
34	35	36

FINDLEY BUTTES, OREGON  
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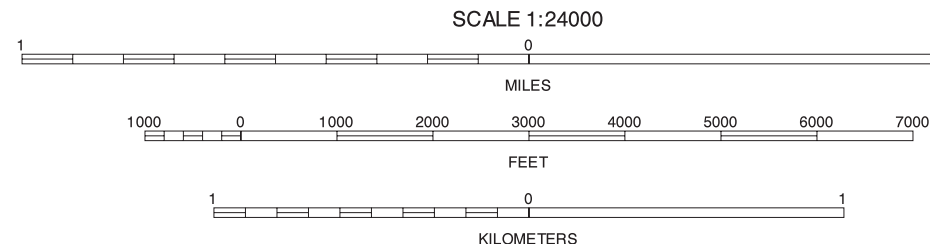
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20	21	20 ZUMWALT
28	28	21 HAAS HOLLOW
35	36	28 FINDLEY BUTTES
		35 CLEAR LAKE RIDGE
		36 SHEEP CREEK DIVIDE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





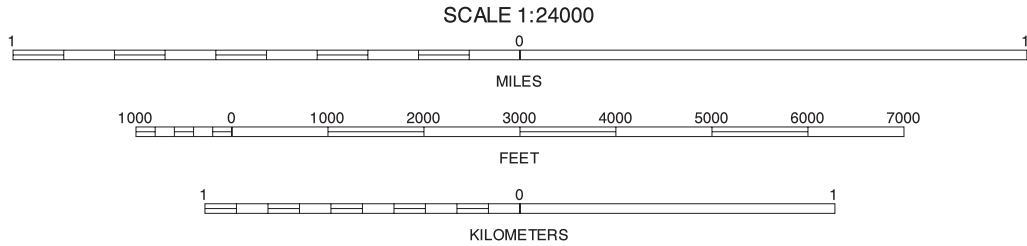
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



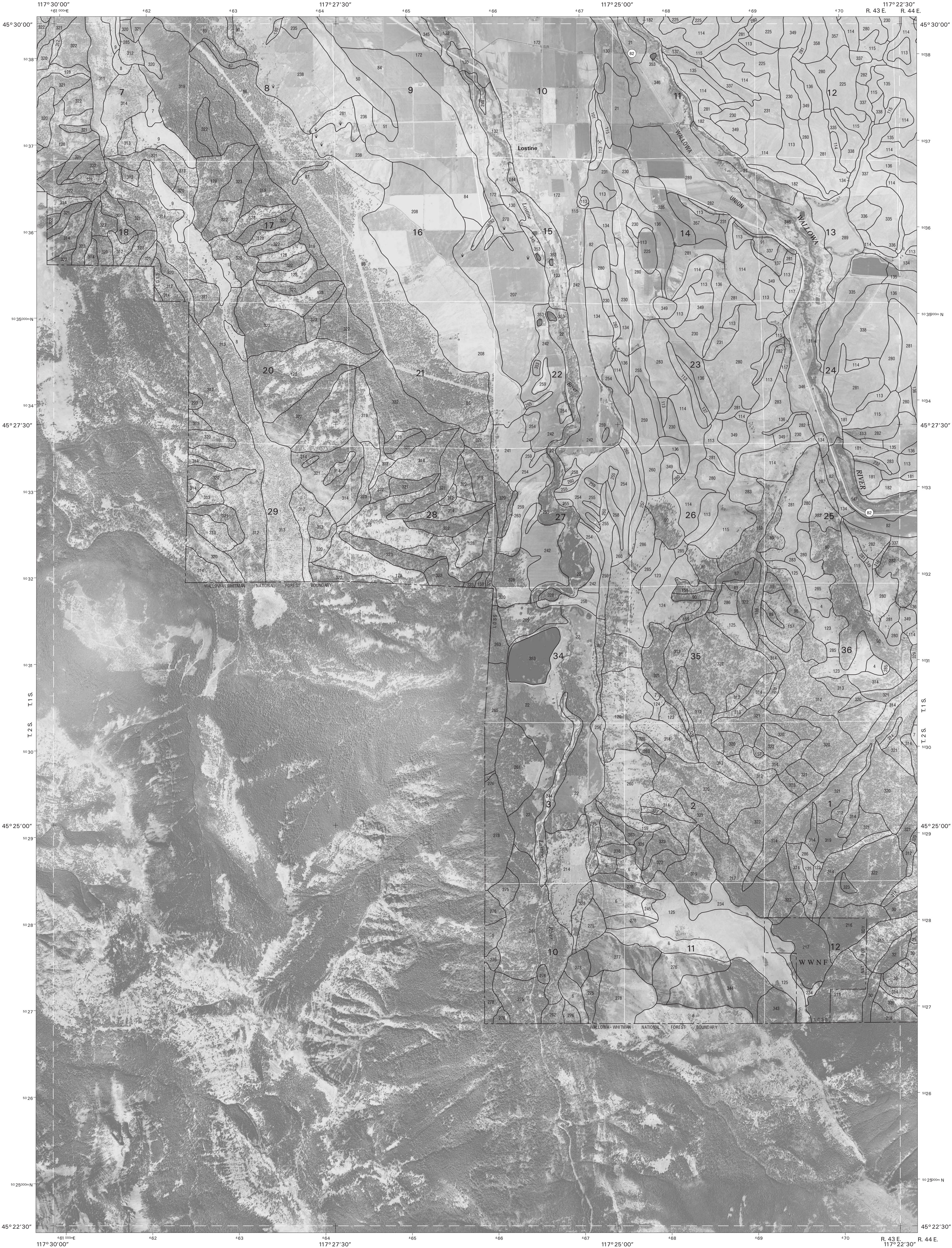
22	23	24	22 MINAM
			23 WALLOWA
			24 EVANS
		31	31 LOSTINE

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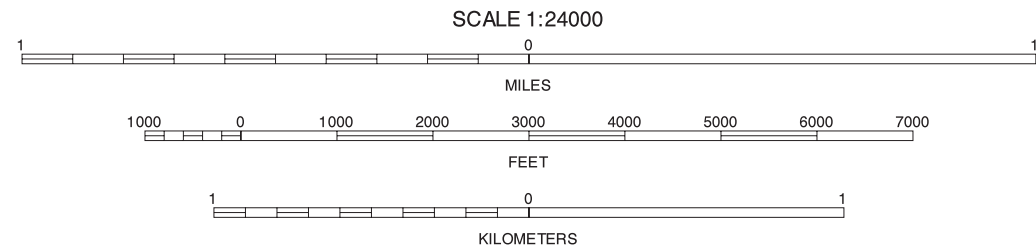
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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



23	24	25	29	WALLOWA
			24	EVANS
			25	HICKS SPRING
30		32	30	FOX POINT
			32	ENTERPRISE
			37	CHIEF JOSEPH MOUNTAIN

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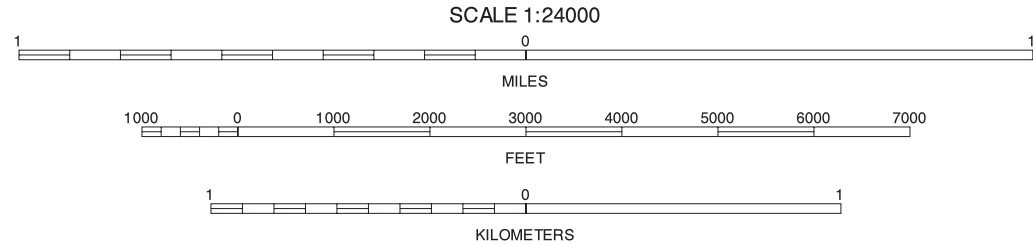
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24	25	26	24 EVANS
			25 HICKS SPRING
			26 ELK MOUNTAIN
31		33	31 LOSTINE
			33 JOSEPH NW
	37	38	37 CHIEF JOSEPH MOUNTAIN
			38 JOSEPH

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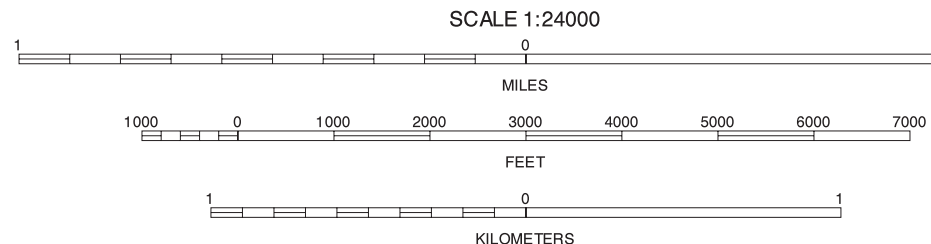
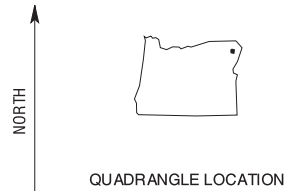
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



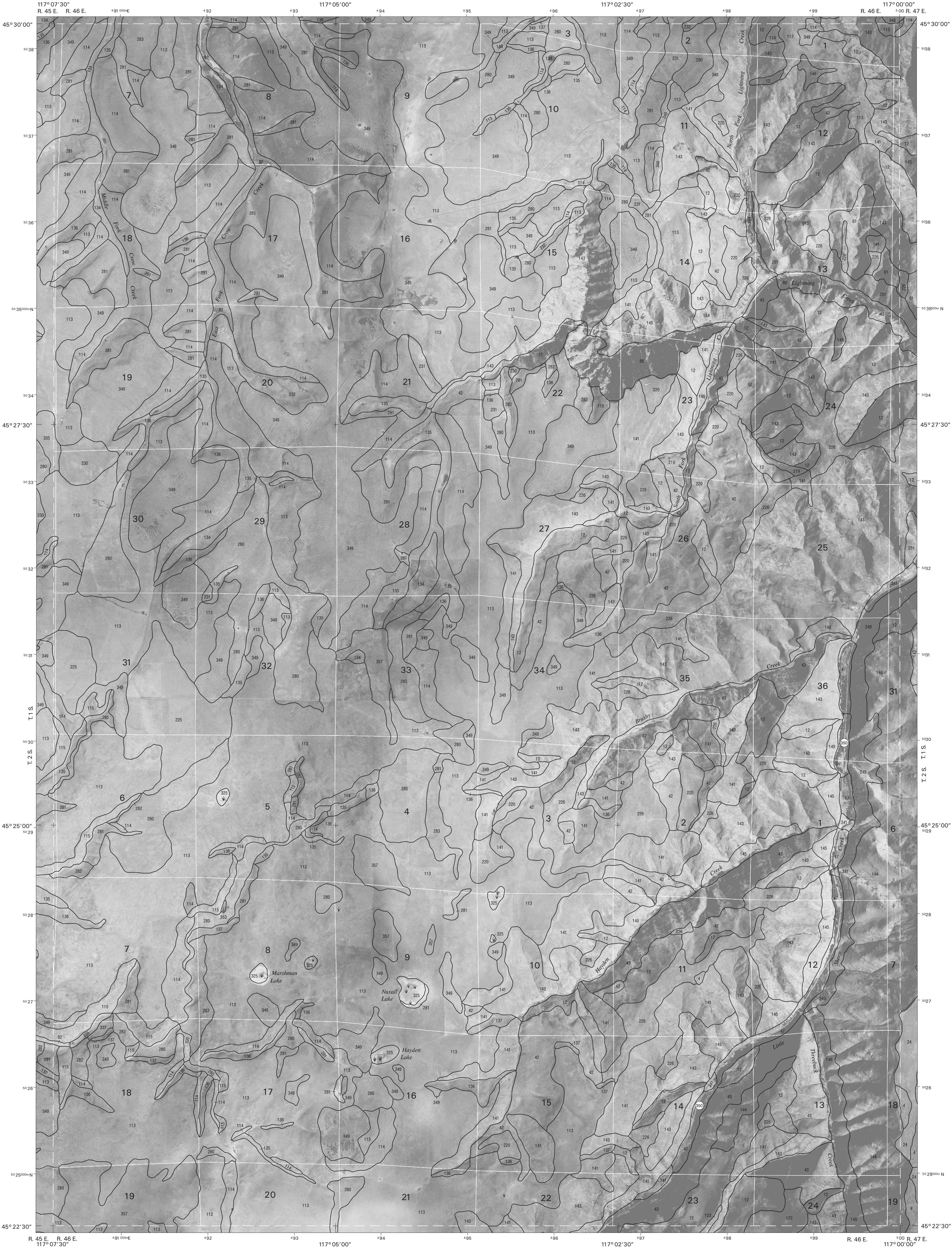
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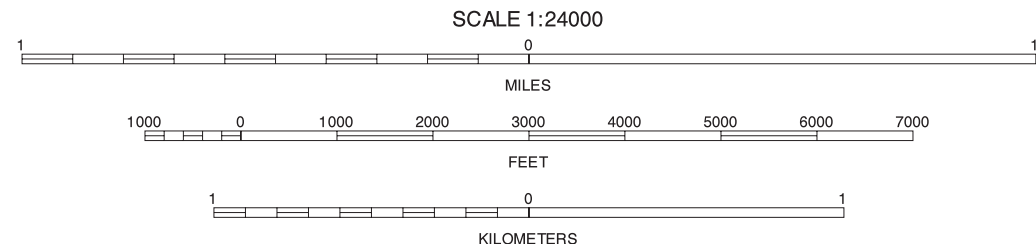
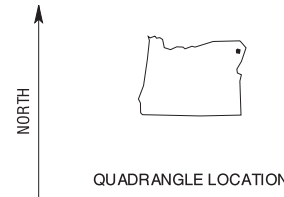
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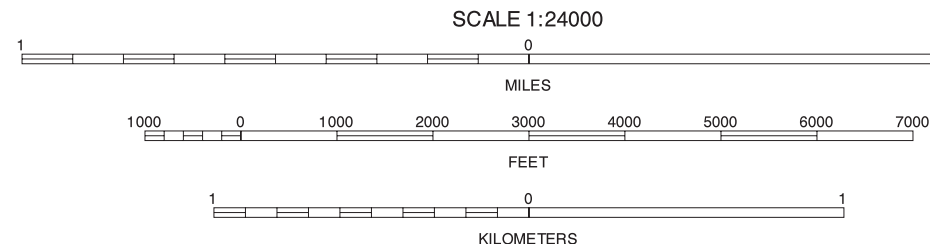
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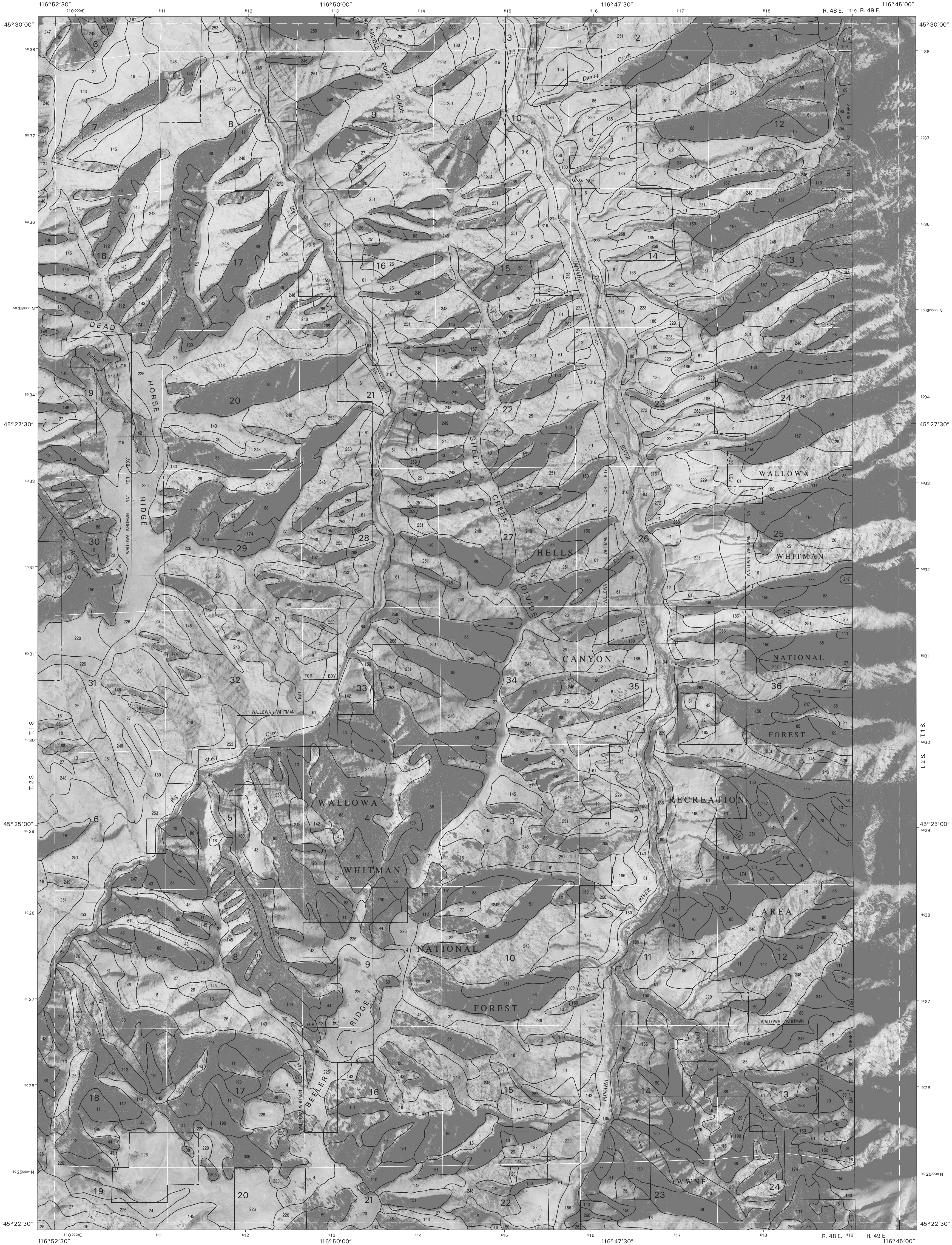
27	28	29	27	ELK MOUNTAIN SE
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34		36	34	THREE LAKES COUNTRY
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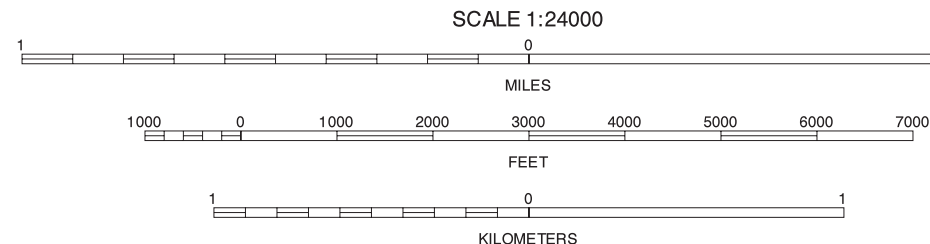
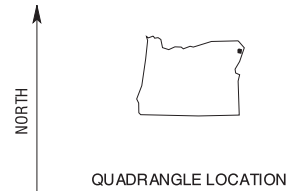
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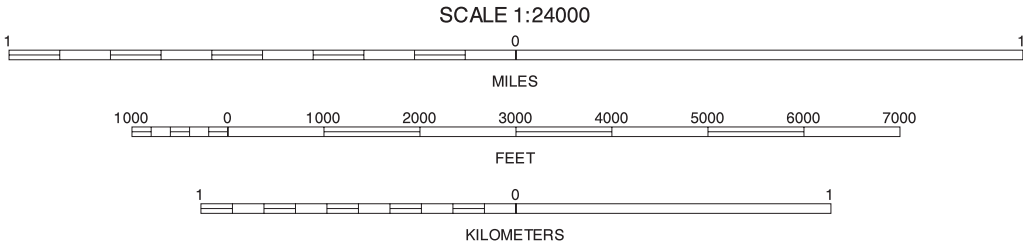
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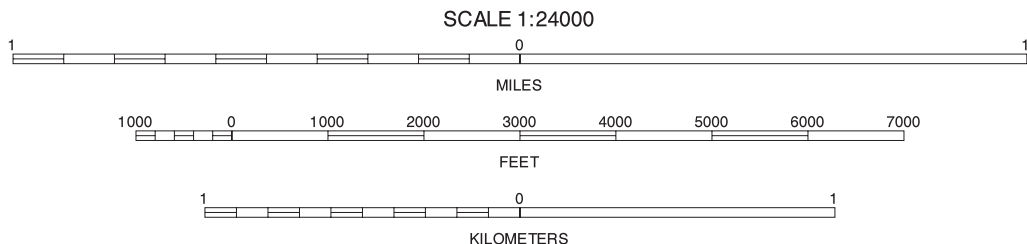
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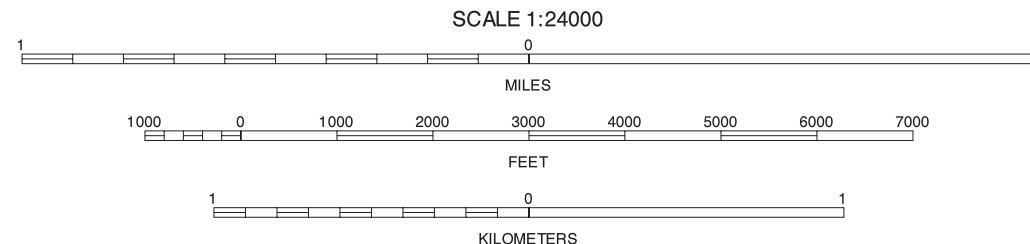
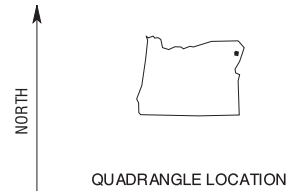
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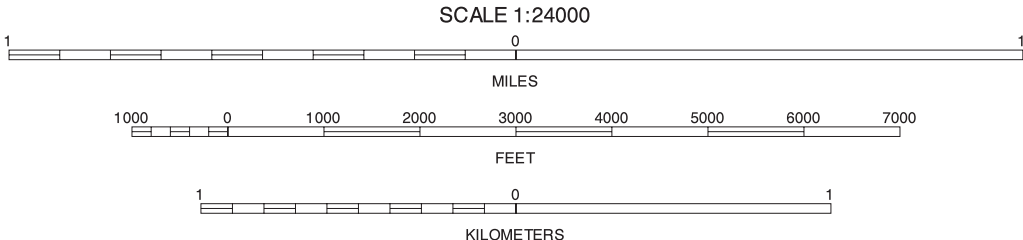
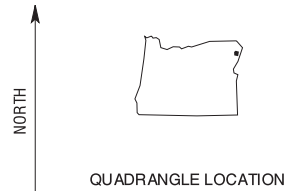
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34	35	36
39	40	41

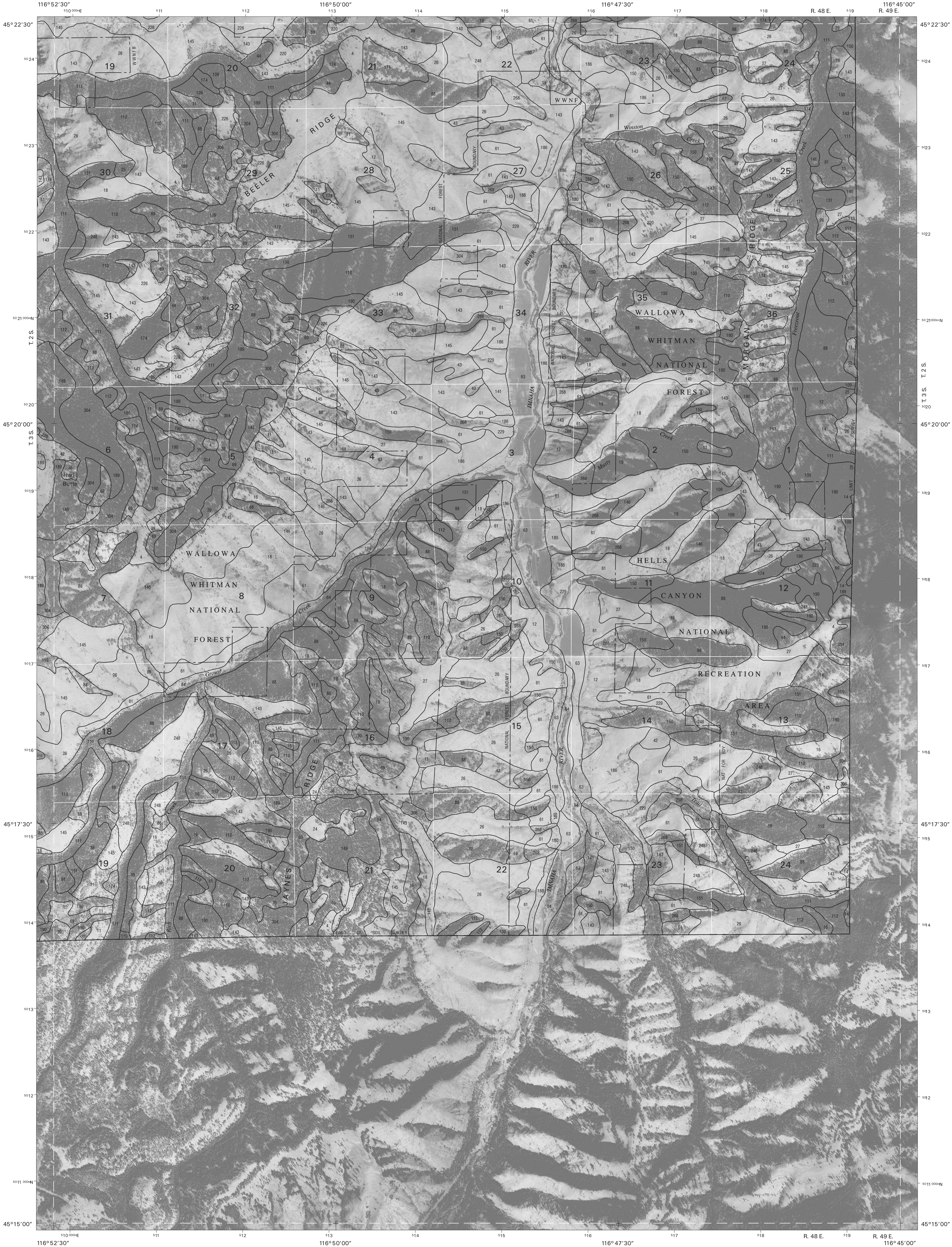
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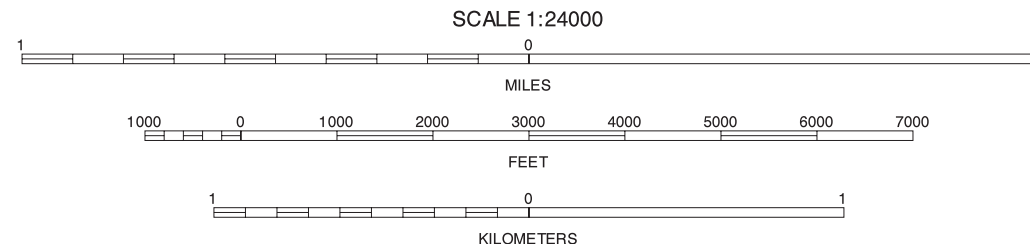
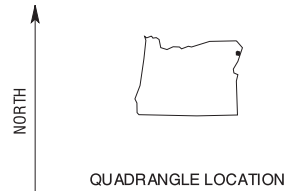
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35	36	35 CLEAR LAKE RIDGE
40	41	36 SHEEP CREEK DIVIDE
40	41	40 HARL BUTTE

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